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

September 20, 2019

Russell Walker, Acting Chair
Halifax Water
Halifax, NS

The regular meeting of the Halifax Water Board will be held on Thursday, September 26, 2019. The In-Camera meeting will be held at 9:00 am, followed by the Regular Meeting at 10:00 a.m. in the Boardroom at 455 Cowie Hill Road, Halifax.

AGENDA

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 20, 2019
   b) Approval of Minutes of the Annual General Meeting held on Thursday, July 18, 2019

3. Business Arising from Minutes

Financial

4.1 Operating Results for the Five Months Ended August 31, 2019
4.2 Signing Authority

Capital Approvals

5. None

Other

6. Fall 2019 Debenture
7. Geizer Hill CCC Adjustment
8. Cost Recovery for Manual Meter Reads

Information Reports

1-I Operations and Financial Monthly Update
2-I Capital Budget Approvals to Date – 2019/20

3-I Bank Balance
4-I 2018/19 Annual Report
5-I Compliance Statement
6-I HRM Pension Plan Investment Performance – 2nd Quarter (Q2), 2019
7-I Halifax Regional Water Commission Employees' Pension Plan Financial Report – 2nd Quarter (Q2), 2019
8-I Lake Major Water Levels
9-I 2019/20 Q1 Cost Containment
10-I 2019/20 Capital Budget Update

Original Signed By:

Heidi Schedler
Secretary

MINUTES WILL BE POSTED UPON APPROVAL

Halifax Water
Halifax Regional Water Commission

ITEM # 4.1
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 18, 2019

SUBJECT: **Operating Results for the Five Months Ended August 31, 2019**

INFORMATION REPORT

ORIGIN

Financial Statements

BACKGROUND

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

DISCUSSION

Attached are the operating results for the first five (5) months of the 2019/20 fiscal year, period ending August 31, 2019. The statements reflect direct operating costs by department and allocations among water, wastewater and stormwater for common costs shared across all the services provided by Halifax Regional Water Commission (HRWC).

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

budget for the 2019/20 fiscal year was prepared using the NSUARB format and financial results continue to be provided in NSUARB format.

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

Consolidated Income Statement - Page 2

Summarized Consolidated Operating Results				
	Actual YTD 2019/20 '000	Actual YTD 2018/19 '000	$ Change	% Change
Operating Revenue	**$58,520**	$59,884	($1,364)	(2.3%)
Operating Expenses	**$44,737**	$41,527	$3,210	7.7%
Operating Surplus (Deficit)	**$13,783**	$18,357	($4,574)	(24.9%)
Non Operating Revenue	**$677**	$734	($57)	(7.8%)
Non Operating Expenditures	**$12,863**	$14,221	($1,358)	(9.5%)
Net Surplus before OCI	**$1,597**	$4,870	($3,273)	(67.2%)
Pension Plan Expense	**($2,362)**	($1,225)	($1,137)	92.8%
OCI	**$0**	$0	$0	0.0%
Net Surplus (Deficit)	**($765)**	$3,645	($4,410)	(121.0%)

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

Key items of note:

- Operating revenue to date of $58.5 million is $1.4 million lower than the prior year.
- Operating expenses to date of $44.7 million are $3.2 million higher than the prior year.
- Excluding OCI and Pension Plan Expense, the Net Surplus for the year to date is $1.6 million, a decline of $3.3 million.
- The Net Surplus for the year to date is a loss of $0.8 million, a decline of $4.4 million from the prior year.
- The approved budget was for a loss of $14.0 million for the full fiscal year.
- The Forecast is for a loss of $11.1 million, an improvement of $2.9 million from the approved Budget.

Balance Sheet - Page 3

Key indicators and balances from the Balance Sheet are provided on the following tables (figures shown are in thousands):

Cash On Hand		
	2019/20	2018/19
Cash On Hand	**$39,220**	$54,064

Balance Sheet Liquidity (Current Ratio)		
	2019/20	2018/19
Current Assets	**$86,294**	$102,599
Current Liabilities	**$51,331**	$47,314
Current Ratio	**1.68**	2.17

Accounts Receivable		
	2019/20	2018/19
Customer Receivables	**$13,313**	$13,372
Unbilled Services	**$18,792**	$18,355
Halifax Regional Municipality	**$13,222**	$14,780
Total	**$45,327**	$46,507

Accounts Payable		
	2019/20	2018/19
Trade Payables	**$12,439**	$12,254
LT Debt Interest	**$2,412**	$2,507
Halifax Regional Municipality	**$4,597**	$2,792
Total	**$19,447**	$17,554

Capital Assets Under Construction	
	Cumulative
AMI - Advanced Metering Infrastructure	**$15,150**
JD Kline Filtration Replacement	**$4,740**
Lake Major Dam Replacement	**$3,636**
Ellenvale Run Retaining Wall System	**$3,164**
All other projects	**$31,842**
Total Capital Expenditures	**$58,532**
External Funding Received	**($6,355)**
Net Assets Under Construction	**$52,178**

Long Term Debt by Service		
	2019/20	2018/19
Water	**$55,329**	$52,441
Wastewater	**$111,146**	$124,035
Stormwater	**$12,806**	$11,016
Combined	**$179,281**	$187,493

Debt Servicing Ratio by Service		
	YTD Debt Servicing Cost Ratio	
	2019/20	2018/19
Water	**11.2%**	17.6%
Wastewater	**23.7%**	22.5%
Stormwater	**20.0%**	18.0%
Combined	**18.3%**	20.2%

- Long Term Debt is down $8.2 million from the prior year as debt repayments have been greater than new debt acquired.
- The debt servicing ratio for Water of 11.2% is substantially lower than the prior year because the prior year includes the final, large repayment for the original Lake Major debt.
- The debt servicing ratio of 18.3% is well below the maximum 35% ratio allowed under the blanket guarantee agreement with HRM.

Operating Surplus		
	2019/20	2018/19
Opening Operating Surplus	**$15,663**	$20,481
Year to date Suplus/(Deficit)	**($765)**	$3,645
Cumulative Operating Surplus	**$14,898**	$24,126

Income Statement – All Services - Page 4

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

Summarized Consolidated Operating Results			
	Actual YTD 2019/20 '000	Five Month Budget 2019/20 '000	$ Variance
Operating Revenue	**$58,520**	$57,803	$717
Operating Expenses	**$44,737**	$47,953	($3,216)
Operating Surplus (Deficit)	**$13,783**	$9,850	$3,934
Non Operating Revenue	**$677**	$571	$106
Non Operating Expenditures	**$12,863**	$13,906	($1,043)
Surplus (Deficit)	**$1,597**	($3,486)	$5,083

Summarized Consolidated Operating Results			
	Actual YTD 2019/20 '000	Five Month Forecast 2019/20 '000	$ Variance
Operating Revenue	**$58,520**	$57,626	$894
Operating Expenses	**$44,737**	$47,317	($2,580)
Operating Surplus (Deficit)	**$13,783**	$10,310	$3,474
Non Operating Revenue	**$677**	$654	$23
Non Operating Expenditures	**$12,863**	$13,223	($359)
Surplus (Deficit)	**$1,597**	($2,259)	$3,856

- Year to date results are $5.1 million better than the pro-rated budget and $3.9 million ahead of the pro-rated forecast.
- Revenue and expenses are expected to align with the forecast as the fiscal year progresses.

Operating Revenue

Operating Revenue Results			
	YTD Actual 2019/20 '000	YTD Budget 2019/20 '000	$ Variance
Consumption Revenue	**$36,464**	$35,711	$754
Base Charge Revenue	**$13,993**	$13,949	$44
Wastewater Rebate	**($418)**	($582)	$164
Metered Sales Sub-total	**$50,040**	$49,078	$961
SW Site Generated Charge	**$2,542**	$2,646	($104)
HRM Fire Protection & Right of Way	**$4,546**	$4,546	$0
Other Operating Revenue	**$1,393**	$1,533	($140)
Operating Revenue Total	**$58,520**	$57,803	$717

Operating Revenue Results			
	YTD Actual 2019/20 '000	Prior Yr Actual 2018/19 '000	$ Variance
Consumption Revenue	**$36,464**	$36,150	$314
Base Charge Revenue	**$13,993**	$13,928	$65
Wastewater Rebate	**($418)**	$1,128	($1,546)
Metered Sales Sub-total	**$50,040**	$51,207	($1,167)
SW Site Generated Charge	**$2,542**	$2,614	($72)
HRM Fire Protection & Right of Way	**$4,546**	$4,546	$0
Other Operating Revenue	**$1,393**	$1,518	($125)
Operating Revenue Total	**$58,520**	$59,884	($1,364)

Operating revenue is down $1.4 million as compared to the previous year. Key items of note include:

- Water consumption is up 0.3% on a volumetric basis as compared to the previous year. Consumption had been budgeted to remain consistent with the prior year.

- Metered sales revenue for Water Service is up $0.1 million (0.7%) as compared to the prior year.
- Metered sales revenue for Wastewater Service is down $1.3 million (4.2%) as compared to the prior year. The decline is attributable to a change in the accrual of the Wastewater Rebate in the prior year. Wastewater Consumption revenue is up $0.2 million and Base Charge revenue is on par with the prior year.

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

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

Operating Expenses

Summary of Operating Expenses by Department

	Actual YTD 2019/20 '000	Budget YTD 2019/20 '000	$ Variance	% Variance
Water Services	**$8,687**	$9,583	($895)	(9.3%)
WW Services	**$13,559**	$14,284	($725)	(5.1%)
SW Services	**$1,872**	$2,412	($540)	(22.4%)
Engineering & IS	**$4,539**	$3,575	$964	27.0%
Regulatory Services	**$1,483**	$1,700	($217)	(12.8%)
Corporate Services	**$4,803**	$5,947	($1,145)	(19.2%)
Depreciation	**$9,793**	$10,452	($659)	(6.3%)
Total Operating Expenses	**$44,737**	$47,953	($3,216)	(6.7%)

Key items to note:

- Operating expenses of $44.7 million are $3.2 million higher than the prior year and $3.2 million below the five month budget for the year.
- Costs for most departments are under the five month budget.
- Compared to the prior year, expense categories with the largest increases in costs to date are Engineering and Information Systems, Transmission and Distribution, and Depreciation.

Financial Revenue

Key items to note:

- Higher than anticipated cash balances and rising interest rates have generated higher interest income.
- Miscellaneous revenue includes various un-regulated activities such as tower leases, energy generation, consulting activities and some contracted services.

Financial Expenses

Key items to note:

- Long Term Debt principal and interest expenses are $1.4 million lower than in the prior year. Debt servicing savings are a result of:
    - New debt issues having lower interest rates than older, maturing issues.
    - Lower debt appropriation expense resulting from a lower total debt balance. For the past three years debt repayments have been greater than new debt issues.
- There is a separate report on the debt requirements for the MFC's Fall Debenture.

Operating Results by Service - Pages 5-7

Year to Date Operating Results by Service		
	2019/20	2018/19
	'000	'000
Water	**$1,039**	$1,491
Wastewater	**($1,373)**	$2,425
Stormwater	**($431)**	($271)
Surplus (Deficit)	**($765)**	$3,645

Regulated and Unregulated Operations - Page 8

Results by Activity		
	2019/20	2018/19
	'000	'000
Regulated Activities	**($1,034)**	$3,102
Unregulated Activities	**$269**	$543
Surplus (Deficit)	**($765)**	$3,645

Results under International Financial Reporting Standards - Pages 9 & 10

As noted previously, the AcSB requires HRWC, as a rate regulated utility, to report financial results using IFRS.

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

On the IFRS Income Statement, revenue is the same. Depreciation expense is higher as contributed assets are depreciated and some assets are depreciated more quickly. Financial revenue is higher as the amortization of contributed capital is treated as revenue. The most significant change is financial expenses are lower as there is no expense for the Long Term Debt Principal appropriation – a difference of $19.8 million for the full year.

The IFRS Surplus for the year to date is $5.9 million.

ATTACHMENTS

Unaudited Operating Results for the five (5) months ended August 31, 2019

Report prepared by: *Original Signed By:*

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

HALIFAX WATER
UNAUDITED BALANCE SHEET - CONSOLIDATED
AS OF AUGUST 31, 2019

	August 31, 2019 '000	August 31, 2018 '000
ASSETS		
Cash	$39,220	$54,064
Accounts Receivable	$45,327	$46,507
Materials & Supplies	$1,516	$1,528
Prepaid Expenses	$232	$500
	$86,294	$102,599
Regulatory Asset	$2,925	$3,117
Plant in Service	$1,257,408	$1,213,268
Assets Under Construction	$52,178	$38,383
	$1,312,511	$1,254,767
Unamortized Debt Discount & Issue Expense	$771	$841
	$1,399,576	**$1,358,207**
LIABILITIES & CAPITAL		
Trade Payables & Accrued Liabilities	$19,447	$17,554
Deposits & Unearned Revenue	$7,175	$7,131
Current Portion of Long Term Debt	$24,709	$22,630
	$51,331	$47,314
Pension & Accrued Retirement Benefits	$73,297	$71,113
RDC & Special Purpose Reserves	$43,777	$32,493
Long Term Debt	$179,281	$187,493
Total Liabilities	$347,686	$338,413
Capital Surplus, Committed Reserves, & Accumulated OCI	$1,036,992	$995,668
Operating Surplus	$15,663	$20,481
Excess (Deficiency) of Revenue over Expenditure - Consolidated	($765)	$3,645
Total Capital & Surplus	$1,051,890	$1,019,794
	$1,399,576	**$1,358,207**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - CONSOLIDATED
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of FORECAST
$12,354	$12,529	**OPERATING REVENUE**	$58,520	$59,884	$138,727	$138,303	42.31%
$8,895	$7,895	**OPERATING EXPENSES**	$44,737	$41,527	$115,088	$113,560	39.39%
$3,459	**$4,634**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$13,783**	**$18,357**	**$23,639**	**$24,743**	**55.71%**
		FINANCIAL REVENUE					
$81	$95	INVESTMENT INCOME	$464	$409	$816	$1,016	45.66%
$37	$76	MISCELLANEOUS	$213	$325	$553	$553	38.45%
$118	**$171**		**$677**	**$734**	**$1,369**	**$1,569**	**43.12%**
		FINANCIAL EXPENSES					
$608	$633	LONG TERM DEBT INTEREST	$3,031	$3,175	$8,182	$7,645	39.65%
$1,546	$1,795	LONG TERM DEBT PRINCIPAL	$7,633	$8,857	$19,822	$18,800	40.60%
$15	$17	AMORTIZATION DEBT DISCOUNT	$74	$85	$202	$189	39.30%
$423	$417	DIVIDEND/GRANT IN LIEU OF TAXES	$2,116	$2,083	$5,147	$5,079	41.66%
$6	$27	MISCELLANEOUS	$9	$21	$21	$21	43.32%
$2,599	**$2,888**		**$12,863**	**$14,221**	**$33,374**	**$31,734**	**40.53%**
$979	**$1,917**	**OPERATING SURPLUS (DEFICIT) BEFORE OTHER COMPREHENSIVE INCOME**	**$1,597**	**$4,870**	**($8,366)**	**($5,422)**	**129.45%**
		NON NSUARB ITEMS					
($472)	($245)	PENSION PLAN EXPENSE	($2,362)	($1,225)	($5,668)	($5,668)	41.67%
$0	$0	OTHER COMPREHENSIVE INCOME	$0	$0	$0	$0	0.00%
($472)	**($245)**		**($2,362)**	**($1,225)**	**($5,668)**	**($5,668)**	**41.67%**
$506	**$1,672**	**OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES**	**($765)**	**$3,645**	**($14,034)**	**($11,090)**	**6.90%**

HALIFAX WATER
UNAUDITED BALANCE SHEET
AS OF AUGUST 31, 2019

	August 31, 2019 '000	August 31, 2018 '000
ASSETS		
Cash	$39,220	$54,064
Accounts Receivable		
Customers & Contractual	$13,313	$13,372
Customers & Contractual - Unbilled Services	$18,792	$18,355
Halifax Regional Municipality	$13,222	$14,780
Materials & Supplies	$1,516	$1,528
Prepaid Expenses	$232	$500
	$86,294	$102,599
Regulatory Asset	$2,925	$3,117
Plant in Service - Water	$659,143	$635,397
Plant in Service - Wastewater	$808,038	$761,829
Plant in Service - Stormwater	$271,499	$263,952
Less: Accumulated Depreciation - Water	($192,957)	($184,956)
Accumulated Depreciation - Wastewater	($232,867)	($214,484)
Accumulated Depreciation - Stormwater	($55,447)	($48,470)
	$1,260,333	$1,216,385
Assets Under Construction	$52,178	$38,383
	$1,312,511	$1,254,767
Unamortized Debt Discount & Issue Expense	$771	$841
	$1,399,576	**$1,358,207**
LIABILITIES & CAPITAL		
Trade Payables	$12,439	$12,254
Interest on Long Term Debt	$2,412	$2,507
Halifax Regional Municipality	$4,597	$2,792
Contractor & Customer Deposits	$191	$217
Unearned Revenue	$6,984	$6,914
Current Portion of Long Term Debt	$24,709	$22,630
	$51,331	$47,314
Accrued Post-Retirement Benefits	$380	$430
Accrued Pre-Retirement Benefit	$2,800	$3,972
Deferred Pension Liability	$70,117	$66,711
Special Purpose Reserves not allocated to projects	$1,490	$1,307
Regional Development Charge	$42,287	$31,186
Long Term Debt-Water	$55,329	$52,441
Long Term Debt-Wastewater	$111,146	$124,035
Long Term Debt-Stormwater	$12,806	$11,016
Total Liabilities	$347,686	$338,413
Capital Surplus	$1,063,430	$1,025,841
Committed Reserves	$2,391	$2,391
Accumulated Other Comprehensive Income	($41,209)	($44,943)
Operating Surplus used to Fund Capital	$12,380	$12,380
Operating Surplus	$15,663	$20,481
Excess (Deficiency) of Revenue over Expenditure - Consolidated	($765)	$3,645
Total Capital & Surplus	$1,051,890	$1,019,794
	$1,399,576	**$1,358,207**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - ALL SERVICES
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of BUDGET*	% of FORECAST
		OPERATING REVENUE						
$4,309	$4,383	METERED SALES - WATER	$20,313	$20,174	$47,758	$47,758	42.53%	42.53%
$6,323	$6,406	METERED SALES - WASTEWATER	$29,726	$31,033	$70,031	$70,031	42.45%	42.45%
$505	$520	STORMWATER SITE GENERATED SERVICE	$2,542	$2,614	$6,351	$6,351	40.02%	40.02%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%	41.67%
$320	$320	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,598	$3,835	$3,835	41.67%	41.67%
$230	$243	OTHER SERVICES AND FEES	$1,016	$1,163	$2,825	$2,401	35.97%	42.31%
$41	$31	CUSTOMER LATE PAY./COLLECTION FEES	$193	$170	$453	$453	42.60%	42.60%
$36	$38	MISCELLANEOUS	$184	$185	$400	$400	45.97%	45.97%
$12,354	**$12,529**		**$58,520**	**$59,884**	**$138,727**	**$138,303**	**42.18%**	**42.31%**
		OPERATING EXPENSES						
$722	$600	WATER SUPPLY & TREATMENT	$3,313	$3,234	$9,596	$9,432	34.52%	35.13%
$826	$748	TRANSMISSION & DISTRIBUTION	$4,387	$3,798	$11,128	$10,566	39.42%	41.52%
$873	$853	WASTEWATER COLLECTION	$4,603	$4,448	$10,972	$11,117	41.96%	41.41%
$1,604	$1,418	WASTEWATER TREATMENT PLANTS	$7,448	$6,991	$19,139	$18,766	38.92%	39.69%
$286	$348	STORMWATER COLLECTION	$1,849	$2,014	$5,750	$5,604	32.15%	32.99%
$283	$232	SMALL SYSTEMS AND OTHER SERVICES	$1,407	$1,221	$3,622	$3,578	38.85%	39.33%
$206	$181	SCADA, CONTROL & PUMPING	$1,111	$944	$2,861	$2,856	38.83%	38.90%
$779	$618	ENGINEERING & INFORMATION SERVICES	$4,539	$3,440	$8,579	$8,962	52.91%	50.64%
$325	$234	REGULATORY SERVICES	$1,483	$1,362	$4,081	$4,264	36.34%	34.78%
$502	$373	CUSTOMER SERVICE	$2,184	$2,014	$5,727	$5,757	38.15%	37.94%
$525	$443	ADMINISTRATION & PENSION	$2,618	$2,823	$8,547	$7,572	30.63%	34.58%
$1,962	$1,848	DEPRECIATION	$9,793	$9,238	$25,085	$25,085	39.04%	39.04%
$8,895	**$7,895**		**$44,737**	**$41,527**	**$115,088**	**$113,560**	**38.87%**	**39.39%**
$3,459	**$4,634**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$13,783**	**$18,357**	**$23,639**	**$24,743**	**58.31%**	**55.71%**
		FINANCIAL REVENUE						
$81	$95	INVESTMENT INCOME	$464	$409	$816	$1,016	56.85%	45.66%
$37	$76	MISCELLANEOUS	$213	$325	$553	$553	38.45%	38.45%
$118	**$171**		**$677**	**$734**	**$1,369**	**$1,569**	**49.41%**	**43.12%**
		FINANCIAL EXPENSES						
$608	$633	LONG TERM DEBT INTEREST	$3,031	$3,175	$8,182	$7,645	37.05%	39.65%
$1,546	$1,795	LONG TERM DEBT PRINCIPAL	$7,633	$8,857	$19,822	$18,800	38.51%	40.60%
$15	$17	AMORTIZATION DEBT DISCOUNT	$74	$85	$202	$189	36.77%	39.30%
$423	$417	DIVIDEND/GRANT IN LIEU OF TAXES	$2,116	$2,083	$5,147	$5,079	41.11%	41.66%
$6	$27	MISCELLANEOUS	$9	$21	$21	$21	43.32%	43.32%
$2,599	**$2,888**		**$12,863**	**$14,221**	**$33,374**	**$31,734**	**38.54%**	**40.53%**
$979	**$1,917**	**OPERATING SURPLUS (DEFICIT) BEFORE OTHER COMPREHENSIVE INCOME**	**$1,597**	**$4,870**	**($8,366)**	**($5,422)**	**119.09%**	**129.45%**
		NON NSUARB ITEMS						
($472)	($245)	PENSION PLAN EXPENSE	($2,362)	($1,225)	($5,668)	($5,668)	41.67%	41.67%
$0	$0	OTHER COMPREHENSIVE INCOME	$0	$0	$0	$0	0.00%	0.00%
($472)	**($245)**		**($2,362)**	**($1,225)**	**($5,668)**	**($5,668)**	**41.67%**	**41.67%**
$506	**$1,672**	**OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES**	**($765)**	**$3,645**	**($14,034)**	**($11,090)**	**5.45%**	**6.90%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WATER OPERATIONS
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of FORECAST
		OPERATING REVENUE					
$4,309	$4,383	METERED SALES	$20,313	$20,174	$47,758	$47,758	42.53%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%
$70	$67	PRIVATE FIRE PROTECTION SERVICES	$364	$358	$873	$873	41.64%
$66	$52	BULK WATER STATIONS	$161	$161	$292	$292	54.96%
$24	$16	CUSTOMER LATE PAY./COLLECTION FEES	$103	$94	$223	$223	46.16%
$14	$15	MISCELLANEOUS	$78	$76	$166	$166	46.70%
$5,073	**$5,122**		**$23,966**	**$23,810**	**$56,387**	**$56,387**	**42.50%**
		OPERATING EXPENSES					
$722	$600	WATER SUPPLY & TREATMENT	$3,313	$3,234	$9,596	$9,432	35.13%
$826	$748	TRANSMISSION & DISTRIBUTION	$4,387	$3,798	$11,128	$10,566	41.52%
$134	$103	SMALL SYSTEMS (inc. Contract Systems)	$580	$529	$1,237	$1,224	47.35%
$76	$65	SCADA, CONTROL & PUMPING	$407	$346	$1,037	$1,055	38.64%
$346	$260	ENGINEERING & INFORMATION SERVICES	$2,027	$1,483	$3,901	$4,103	49.41%
$68	$56	REGULATORY SERVICES	$324	$305	$1,142	$1,239	26.12%
$256	$190	CUSTOMER SERVICE	$1,113	$1,026	$2,918	$2,933	37.96%
$510	$354	ADMINISTRATION & PENSION	$2,548	$2,078	$7,243	$6,746	37.77%
$760	$741	DEPRECIATION	$3,801	$3,703	$9,955	$9,955	38.18%
$3,699	**$3,117**		**$18,501**	**$16,502**	**$48,159**	**$47,253**	**39.15%**
$1,374	**$2,005**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$5,465**	**$7,309**	**$8,229**	**$9,134**	**59.83%**
		FINANCIAL REVENUE					
$36	$43	INVESTMENT INCOME	$209	$184	$367	$457	45.66%
$28	$66	MISCELLANEOUS	$170	$280	$431	$431	39.41%
$65	**$109**		**$379**	**$464**	**$798**	**$888**	**42.62%**
		FINANCIAL EXPENSES					
$149	$159	LONG TERM DEBT INTEREST	$738	$808	$2,239	$1,857	39.75%
$391	$677	LONG TERM DEBT PRINCIPAL	$1,928	$3,341	$5,165	$4,735	40.71%
$5	$8	AMORTIZATION DEBT DISCOUNT	$25	$38	$67	$63	40.08%
$423	$417	DIVIDEND/GRANT IN LIEU OF TAXES	$2,116	$2,083	$5,147	$5,079	41.66%
$4	$25	MISCELLANEOUS	($3)	$12	$11	$11	-25.47%
$971	**$1,286**		**$4,805**	**$6,282**	**$12,630**	**$11,746**	**40.91%**
$468	**$828**	**OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES**	**$1,039**	**$1,491**	**($3,603)**	**($1,723)**	**160.29%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WASTEWATER OPERATIONS
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of FORECAST
		OPERATING REVENUE					
$6,323	$6,406	METERED SALES	$29,726	$31,033	$70,031	$70,031	42.45%
$0	$0	WASTEWATER OVERSTRENGTH AGREEMENTS	$13	$29	$50	$36	35.89%
$38	$24	LEACHATE CONTRACT	$153	$128	$394	$394	38.75%
$5	$6	CONTRACT REVENUE	$35	$33	$86	$86	40.99%
$0	$17	DEWATERING FACILITY/SLUDGE LAGOON	$0	$87	$210	$0	0.00%
$1	$0	AIRLINE EFFLUENT	$27	$30	$160	$160	17.14%
$49	$75	SEPTAGE TIPPING FEES	$264	$337	$760	$560	47.07%
$15	$14	CUSTOMER LATE PAY./COLLECTION FEES	$78	$72	$164	$164	47.47%
$15	$13	MISCELLANEOUS	$66	$67	$139	$139	47.30%
$6,447	**$6,555**		**$30,362**	**$31,815**	**$71,993**	**$71,569**	**42.42%**
		OPERATING EXPENSES					
$873	$853	WASTEWATER COLLECTION	$4,603	$4,448	$10,972	$11,117	41.41%
$1,604	$1,418	WASTEWATER TREATMENT PLANTS	$7,448	$6,991	$19,139	$18,766	39.69%
$93	$101	SMALL SYSTEMS	$484	$496	$1,323	$1,310	37.00%
$23	$7	DEWATERING FACILITY/ SLUDGE MGM'T	$210	$85	$636	$618	33.96%
$0	$0	BIOSOLIDS TREATMENT	$0	$0	$101	$101	0.41%
$33	$21	LEACHATE CONTRACT	$133	$111	$325	$325	40.82%
$126	$112	SCADA, CONTROL & PUMPING	$680	$578	$1,784	$1,761	38.60%
$372	$308	ENGINEERING & INFORMATION SERVICES	$2,160	$1,684	$3,556	$3,711	58.22%
$107	$70	REGULATORY SERVICES	$473	$356	$1,007	$1,524	31.01%
$212	$157	CUSTOMER SERVICE	$921	$850	$2,536	$2,549	36.14%
$419	$287	ADMINISTRATION & PENSION	$2,092	$1,694	$5,997	$5,586	37.45%
$1,116	$1,031	DEPRECIATION	$5,562	$5,155	$13,921	$13,921	39.95%
$4,978	**$4,366**		**$24,767**	**$22,447**	**$61,299**	**$61,291**	**40.41%**
$1,469	**$2,190**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$5,595**	**$9,368**	**$10,695**	**$10,279**	**54.43%**
		FINANCIAL REVENUE					
$36	$43	INVESTMENT INCOME	$209	$183	$367	$457	45.66%
$9	$10	MISCELLANEOUS	$43	$46	$122	$122	35.08%
$45	**$53**		**$252**	**$229**	**$489**	**$579**	**43.43%**
		FINANCIAL EXPENSES					
$409	$427	LONG TERM DEBT INTEREST	$2,044	$2,135	$5,133	$5,133	39.82%
$1,037	$1,010	LONG TERM DEBT PRINCIPAL	$5,120	$4,986	$12,965	$12,590	40.67%
$9	$8	AMORTIZATION DEBT DISCOUNT	$44	$42	$113	$113	38.99%
$2	$2	MISCELLANEOUS	$12	$9	$10	$10	115.91%
$1,458	**$1,448**		**$7,219**	**$7,172**	**$18,220**	**$17,845**	**40.46%**
$57	**$795**	**OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES**	**($1,373)**	**$2,425**	**($7,036)**	**($6,987)**	**19.65%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - STORMWATER OPERATIONS
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of FORECAST
		OPERATING REVENUE					
$505	$520	STORMWATER SITE GENERATED SERVICE	$2,542	$2,614	$6,351	$6,351	40.02%
$320	$320	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,598	$3,835	$3,835	41.67%
$2	$1	CUSTOMER LATE PAY./COLLECTION FEES	$12	$4	$66	$66	18.34%
$7	$11	MISCELLANEOUS	$41	$42	$95	$95	42.75%
$833	**$852**		**$4,192**	**$4,258**	**$10,347**	**$10,347**	**40.52%**
		OPERATING EXPENSES					
$286	$348	STORMWATER COLLECTION	$1,849	$2,014	$5,750	$5,604	32.99%
$4	$4	SCADA, CONTROL & PUMPING	$23	$19	$39	$40	58.82%
$61	$50	ENGINEERING & INFORMATION SERVICES	$351	$274	$1,122	$1,149	30.59%
$151	$107	REGULATORY SERVICES	$687	$701	$1,932	$1,501	45.77%
$34	$26	CUSTOMER SERVICE	$150	$138	$273	$275	54.49%
$68	$47	ADMINISTRATION & PENSION	$340	$276	$975	$909	37.45%
$86	$76	DEPRECIATION	$430	$381	$1,208	$1,208	35.61%
$690	**$658**		**$3,831**	**$3,803**	**$11,299**	**$10,685**	**35.85%**
$143	**$194**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$362**	**$455**	**($952)**	**($338)**	**206.98%**
		FINANCIAL REVENUE					
$8	$10	INVESTMENT INCOME	$46	$41	$82	$102	45.66%
$0	$0	MISCELLANEOUS	$0	$0	$0	$0	0.00%
$8	**$10**		**$46**	**$41**	**$82**	**$102**	**45.66%**
		FINANCIAL EXPENSES					
$50	$47	LONG TERM DEBT INTEREST	$249	$232	$810	$655	37.99%
$119	$107	LONG TERM DEBT PRINCIPAL	$585	$531	$1,692	$1,475	39.67%
$1	$1	AMORTIZATION DEBT DISCOUNT	$5	$4	$22	$13	38.15%
$170	**$155**		**$839**	**$767**	**$2,524**	**$2,143**	**39.15%**
($18)	**$48**	**OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES**	**($431)**	**($271)**	**($3,395)**	**($2,380)**	**18.11%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - REGULATED AND UNREGULATED OPERATIONS
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR	ACTUAL (YEAR TO DATE) LAST YEAR	APR 1/19 MAR 31/20 BUDGET*	APR 1/19 MAR 31/20 FORECAST	% of FORECAST
REGULATED ACTIVITIES					
OPERATING REVENUE					
METERED SALES	$52,581	$53,820	$124,139	$124,139	42.36%
FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%
PRIVATE FIRE PROTECTION	$364	$358	$873	$873	41.64%
STORMWATER SERVICE	$1,598	$1,598	$3,835	$3,835	41.67%
OTHER OPERATING REVENUE	$535	$529	$1,158	$1,144	46.76%
	$58,025	**$59,252**	**$137,079**	**$137,065**	**42.33%**
OPERATING EXPENSES					
WATER SUPPLY & TREATMENT	$3,313	$3,234	$9,596	$9,432	35.13%
TRANSMISSION & DISTRIBUTION	$4,387	$3,798	$11,128	$10,566	41.52%
WASTEWATER & STORMWATER COLLECTION	$6,443	$6,445	$16,604	$16,603	38.81%
WASTEWATER TREATMENT PLANTS	$7,448	$6,991	$19,139	$18,766	39.69%
SMALL SYSTEMS	$1,059	$1,017	$2,534	$2,508	42.21%
SCADA, CONTROL & PUMPING	$1,111	$944	$2,861	$2,856	38.90%
ENGINEERING & INFORMATION SERVICES	$4,539	$3,440	$8,579	$8,962	50.64%
REGULATORY SERVICES	$1,483	$1,362	$4,081	$4,264	34.78%
CUSTOMER SERVICE	$2,168	$1,999	$5,687	$5,717	37.92%
ADMINISTRATION & PENSION	$4,965	$4,029	$14,195	$13,220	37.55%
DEPRECIATION	$9,786	$9,231	$25,050	$25,050	39.06%
	$46,701	**$42,489**	**$119,454**	**$117,944**	**39.60%**
FINANCIAL REVENUE					
INVESTMENT INCOME	$464	$409	$816	$1,016	45.66%
MISCELLANEOUS	$33	$131	$110	$110	29.55%
	$496	**$540**	**$926**	**$1,126**	**44.08%**
FINANCIAL EXPENSES					
LONG TERM DEBT INTEREST	$3,031	$3,175	$8,182	$7,645	39.65%
LONG TERM DEBT PRINCIPAL	$7,633	$8,857	$19,822	$18,800	40.60%
AMORTIZATION DEBT DISCOUNT	$74	$85	$202	$189	39.30%
DIVIDEND/GRANT IN LIEU OF TAXES	$2,116	$2,083	$5,147	$5,079	41.66%
	$12,854	**$14,200**	**$33,354**	**$31,714**	**40.53%**
OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES	**($1,034)**	**$3,102**	**($14,802)**	**($11,466)**	**9.02%**
UNREGULATED ACTIVITIES					
OPERATING REVENUE					
SEPTAGE TIPPING FEES	$264	$337	$760	$560	47.07%
LEACHATE CONTRACT	$153	$128	$394	$394	38.75%
CONTRACT REVENUE	$35	$33	$86	$86	40.99%
DEWATERING	$0	$87	$210	$0	0.00%
AIRLINE EFFLUENT	$27	$30	$160	$160	17.14%
ENERGY PROJECTS	$67	$67	$168	$168	39.64%
MISCELLANEOUS	$16	$16	$38	$38	41.67%
	$561	**$698**	**$1,816**	**$1,406**	**39.93%**
OPERATING EXPENSES					
WATER SUPPLY & TREATMENT	$6	$8	$26	$26	21.58%
WASTEWATER TREATMENT	$352	$214	$1,180	$1,162	30.31%
SPONSORSHIPS & DONATIONS	$32	$33	$61	$61	52.18%
DEPRECIATION	$7	$7	$35	$35	21.34%
	$397	**$262**	**$1,302**	**$1,284**	**30.93%**
FINANCIAL REVENUE					
MISCELLANEOUS	$114	$128	$275	$275	41.28%
	$114	**$128**	**$275**	**$275**	**41.28%**
FINANCIAL EXPENSES					
MISCELLANEOUS	$9	$21	$21	$21	43.32%
	$9	$21	$21	$21	**43.32%**
OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES	**$269**	**$543**	**$768**	**$376**	**71.46%**
TOTAL OPERATING SURPLUS (DEFICIT) AVAILABLE FOR CAPITAL EXPENDITURES (REGULATED AND UNREGULATED)	**($765)**	**$3,645**	**($14,034)**	**($11,090)**	**6.90%**

HALIFAX WATER
UNAUDITED BALANCE SHEET - IFRS FORMAT
AS OF AUGUST 31, 2019

	August 31, 2019 '000	August 31, 2018 '000
ASSETS		
Cash	$39,220	$54,064
Accounts Receivable		
Customers & Contractual	$13,313	$13,372
Customers & Contractual - Unbilled Services	$18,792	$18,355
Halifax Regional Municipality	$13,222	$14,780
Materials & Supplies	$1,516	$1,528
Prepaid Expenses	$232	$500
	$86,294	$102,599
Regulatory Asset	$2,925	$3,117
Plant in Service - Water	$659,143	$635,397
Plant in Service - Wastewater	$808,038	$761,829
Plant in Service - Stormwater	$271,499	$263,952
Less: Accumulated Depreciation - Water	($206,376)	($192,805)
Accumulated Depreciation - Wastewater	($246,964)	($221,856)
Accumulated Depreciation - Stormwater	($55,502)	($48,467)
	$1,232,762	$1,201,166
Assets Under Construction	$52,178	$38,383
	$1,284,939	$1,239,549
Unamortized Debt Discount & Issue Expense	$771	$841
	$1,372,004	**$1,342,989**
LIABILITIES		
Trade Payables	$12,439	$12,254
Interest on Long Term Debt	$2,412	$2,507
Halifax Regional Municipality	$4,597	$2,792
Contractor & Customer Deposits	$191	$217
Unearned Revenue	$6,984	$6,914
Current Portion of Deferred Contributed Capital	$13,846	$13,405
Current Portion of Long Term Debt	$24,709	$22,630
	$65,177	$60,719
Accrued Post-Retirement Benefits	$380	$430
Accrued Pre-Retirement Benefit	$2,800	$3,972
Deferred Pension Liability	$70,117	$66,711
Deferred Contributed Capital	$864,559	$844,281
Long Term Debt-Water	$55,329	$52,441
Long Term Debt-Wastewater	$111,146	$124,035
Long Term Debt-Stormwater	$12,806	$11,016
Total Liabilities	$1,182,313	$1,163,606
EQUITY		
Accumulated Other Comprehensive Income	($41,209)	($44,943)
Accumulated Surplus	$225,007	$212,603
Excess (Deficiency) of Revenue over Expenditure	$5,892	$11,723
Total Equity	$189,691	$179,382
	$1,372,004	**$1,342,989**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - IFRS FORMAT - ALL SERVICES
APRIL 1/19 - AUGUST 31/19 (5 MONTHS)
41.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/19 MAR 31/20 BUDGET* '000	APR 1/19 MAR 31/20 FORECAST '000	% of BUDGET*	% of FORECAST
		OPERATING REVENUE						
$4,309	$4,383	METERED SALES - WATER	$20,313	$20,174	$47,758	$47,758	42.53%	42.53%
$6,323	$6,406	METERED SALES - WASTEWATER	$29,726	$31,033	$70,031	$70,031	42.45%	42.45%
$505	$520	STORMWATER SITE GENERATED SERVICE	$2,542	$2,614	$6,351	$6,351	40.02%	40.02%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%	41.67%
$320	$320	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,598	$3,835	$3,835	41.67%	41.67%
$230	$243	OTHER SERVICES AND FEES	$1,016	$1,163	$2,825	$2,401	35.97%	42.31%
$41	$31	CUSTOMER LATE PAY./COLLECTION FEES	$193	$170	$453	$453	42.60%	42.60%
$36	$38	MISCELLANEOUS	$184	$185	$400	$400	45.97%	45.97%
$12,354	**$12,529**		**$58,520**	**$59,884**	**$138,727**	**$138,303**	**42.18%**	**42.31%**
		OPERATING EXPENSES						
$722	$600	WATER SUPPLY & TREATMENT	$3,313	$3,234	$9,596	$9,432	34.52%	35.13%
$826	$748	TRANSMISSION & DISTRIBUTION	$4,387	$3,798	$11,128	$10,566	39.42%	41.52%
$873	$853	WASTEWATER COLLECTION	$4,603	$4,448	$10,972	$11,117	41.96%	41.41%
$1,604	$1,418	WASTEWATER TREATMENT PLANTS	$7,448	$6,991	$19,139	$18,766	38.92%	39.69%
$286	$348	STORMWATER COLLECTION	$1,849	$2,014	$5,750	$5,604	32.15%	32.99%
$283	$232	SMALL SYSTEMS AND OTHER SERVICES	$1,407	$1,221	$3,622	$3,578	38.85%	39.33%
$206	$181	SCADA, CONTROL & PUMPING	$1,111	$944	$2,861	$2,856	38.83%	38.90%
$779	$618	ENGINEERING & INFORMATION SERVICES	$4,539	$3,440	$8,579	$8,962	52.91%	50.64%
$325	$234	REGULATORY SERVICES	$1,483	$1,362	$4,081	$4,264	36.34%	34.78%
$502	$373	CUSTOMER SERVICE	$2,184	$2,014	$5,727	$5,757	38.15%	37.94%
$998	$688	ADMINISTRATION & PENSION	$4,980	$4,048	$14,216	$13,241	35.03%	37.61%
$3,671	$3,468	DEPRECIATION	$18,469	$17,338	$25,085	$37,610	73.63%	49.11%
$11,076	**$9,760**		**$55,775**	**$50,851**	**$120,756**	**$131,753**	**46.19%**	**42.33%**
$1,278	**$2,769**	**OPERATING SURPLUS BEFORE FINANCIAL REVENUE AND EXPENSES**	**$2,745**	**$9,032**	**$17,971**	**$6,550**	**15.28%**	**41.91%**
		FINANCIAL REVENUE						
$81	$95	INVESTMENT INCOME	$464	$409	$816	$1,016	56.85%	45.66%
$1,542	$1,525	MISCELLANEOUS	$7,850	$7,568	$553	$13,078	1418.58%	60.02%
$1,623	**$1,620**		**$8,314**	**$7,976**	**$1,369**	**$14,094**	**607.12%**	**58.99%**
		FINANCIAL EXPENSES						
$608	$633	LONG TERM DEBT INTEREST	$3,031	$3,175	$8,182	$7,645	37.05%	39.65%
$15	$17	AMORTIZATION DEBT DISCOUNT	$74	$85	$202	$189	36.77%	39.30%
$423	$417	DIVIDEND/GRANT IN LIEU OF TAXES	$2,116	$2,083	$5,147	$5,079	41.11%	41.66%
$6	$27	MISCELLANEOUS	($54)	($57)	$15	$15	-356.57%	-356.57%
$1,053	**$1,094**		**$5,167**	**$5,286**	**$13,547**	**$12,929**	**38.14%**	**39.96%**
$1,849	**$3,295**	**SURPLUS (DEFICIT) BEFORE OTHER COMPREHENSIVE INCOME**	**$5,892**	**$11,723**	**$5,793**	**$7,715**	**101.71%**	**76.37%**
$0	$0	**OTHER COMPREHENSIVE INCOME**	$0	$0	$0	$0	0.00%	0.00%
$1,849	**$3,295**	**SURPLUS (DEFICIT)**	**$5,892**	**$11,723**	**$5,793**	**$7,715**	**101.71%**	**76.37%**

Halifax Water
Halifax Regional Water Commission

ITEM # 4.2
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D, General Manager

DATE: September 18, 2019

SUBJECT: **Financial Approval Limits**

INFORMATION REPORT

ORIGIN

March 30, 2017 Signing Authority Protocol

RECOMMENDATION

It is recommended the Halifax Water Board approved the revised Financial Approval List as described in this report and shown in the Attachment.

BACKGROUND

On March 30, 2017 the Halifax Water Board approved a Signing Authority Protocol that consisted of three components: a) Signing Authority Guidelines, b) Signing Authority for Banking and Documents Under Seal, and c) Financial Approval List.

The purpose of this report is to update the Financial Approval List. The Signing Authority Guidelines document is also under review and if changes are required they will be brought to a future meeting of the Halifax Water Board.

DISCUSSION

The Financial Approval list sets approval limits for initiation of financial transactions such as payment of invoices and cheque requests. An important role of the Halifax Water Board is to delegate authority and set limits for the General Manager and staff at Halifax Water. Periodically the Board is asked to approve additions or elimination of positions and changes in authority levels.

Historically, the Financial Approval List has contained individual's names, and as staff within the positions change they were updated within the list. This list is maintained by the Accounting department. It is recommended individual names be removed, and the Financial Approval List be based on position titles.

The financial approval limits have not been reviewed or increased in at least fifteen years. The dollar value of financial transactions has increased over the years, particularly after the 2007 wastewater/stormwater merger. The increase in higher dollar value transactions has created some inefficiency in the processing of transactions, as some financial transactions have had to escalate to a higher level for signature, or require two signatures. It is recommended the financial approval limits be increased; to enable more financial transactions to be approved without an escalation or second signature.

Halifax Water's financial approval limits have been compared with the current limits at the Halifax Regional Municipality (HRM). While HRM's approval limits are based on the discretion of the Director, they generally translate as follows. The comparison shows that the approval limits proposed are generally below the limits at HRM:

Organizational Level	Halifax Water	HRM
CAO		Up to $1,250,000
Director/GM	Up to $75,000 with two signatures or up to $50,000 with one signature	Up to $100,000 with one signature
Manager and equivalent	Up to $25,000	Up to $50,000
Supervisor and equivalent	Up to $10,000	Up to $10,000
Senior Administrative Assistants and equivalent	Up to $5,000	Up to $10,000
Junior Administrative Assistants	Up to $2,500	Up to $1,000

ATTACHMENTS

Current Financial Approval List

Proposed Financial Approval List

Report prepared by:

Original Signed By:

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

HALIFAX WATER - Approval Authority List

(amounts shown on a before-tax basis)

Issue Date: Sept 2019

CORPORATE SERVICES	ENGINEERING & INFORMATION SERVICES	REGULATORY SERVICES	WATER SERVICES	WASTEWATER/ STORMWATER SERVICES

Approvals - up to $50,000

(over $50,000 requires any two signatures)

O'Toole, Cathie				
(Vacant)	Hannam, Jamie	MacKenzie, Kenda	Campbell, Reid	Arora, Susheel

Approvals - up to $15,000

Bellemare, Rochelle	Blades, David	Bellemare, Pat	Eisnor, John	Avery, Derek
Brake, Warren	Frenette, Mike	Campbell, Craig	Feener, Mark	Crouse, Nigel
Campbell, Allan	Gillis, Rob	DeYoung, Josh	Geddes, Barry	Deagle, Mike
Comeau, Michelle	Gorman, Tom	Gray, Kevin	Hiscock, Dave	Dort, Dave
Mathew, Shiju	Guppy, Ian	Isnor, Patricia	Houlihan, Andrew	Fahie, Chris
McNeill, Susan	Healy, Kevin	Lloyd, Charles	Krkosek, Wendy	MacNab, Andrew
Schedler, Heidi	Knapp, Jeffrey	McGonnell, Mark	McMullin, Barry	Parsons, Sheldon
	Levesque, Roger	Orman, Mary Anne	Nelson, Terry	Patey, Danny
	MacDonald, Jonathan	Woszczynski, Meghan	Oxner, Garry	Reid, Rick
	MacNeil, Harold		Stevens, Bill	Rice, Ray
	Maynard, Peter		Waddell, Colin	Rowe, Shawn
	McAulay, Jeff			Shea, Heather
	Miller, Heather			Singer, Jarvis
	Pillay, Dayalan			Smith, Grant
	Rice, Greg			White, Peter
	Roberge, Renee			
	Selig, Laura			
	Skinner, Steve			
	Stewart, Jeremy			
	Tagra, Sanjeev			
	Tucker, April			
	Williams, Valerie			

Approvals - up to $7,500

Campbell, James	Kendell, Lucie		Amaral, Dino	Cook, Taylor
Reid, Gail	Kennedy, Mark		Cameron, Melvin	Dezagiacomo, David
	Kennnie, Dan		Connolly, Todd	Foy, Adam
	King, Frank		Doucette, Raymond	Jones, Grayson
	O'Grady, Melissa		Healy, Melissa	King, Cindy
	Patel, Jay		Kaiser, Reid	Mosher, Jamie
	Waterfield, David		Murray, Alana	Pictou, Murray
			Tooke, Tony	Weeks, Chris
			Wilson, Justin	Williams, Cedric

Approvals - up to $2,000

Fraser, Shelly	Belliveau, Norma		Boiduk, Paul	
Halverson, Donna			Bruce, James	
Hood, Sandy			Galbraith, Zach	
Kearney, Karen			Kennedy, Bruce	
MacKinnon, Maria			Masters, Todd	
MacLean, Cindy			Taylor, Kerry-Anne	
Rowe, Rebecca			White, Chris	
Seguin, Amanda				
Shatford, Tanya				
Slaunwhite, Dawn				
Whalen, Corey				

Approvals - up to $1,000

Jodrey, Amanda	Button, Nola	Convey, Johanna	Barkhouse, Jason	Amaral, Karen
Lucas, Gina	Duffy, Lynn	Davis, Myra	Clements, Mike	Awalt, Reg
Marryatt, Leigh	Harker, Emily	Jodrey, Patricia	Conway, Kelly	Barkhouse, Brian
Peterson, Kim	Laffin-Hines, Cindy		Dauphinee, Rachel	Bent, George
Pottie, Brittany	Levangie, Sonya		Fraser, Jeannie	Clark, Colette
Skinner, Lorna	Ward, Ashley		Legassie, Andrea	Cobb, Morgan
Strathdee, Stephanie			MacDonald, Jerry	Cahoon, Robert
Sturgeon, Ann Marie			MacEachern, Cheryl	Hatch, Tracy
Westhaver, Christine			Sellon, Mark	Parsons, Sherry
			Simms, Trish	Rafuse, Doug
			Sutherland, Paul	White, Melissa

ITEM # 4.2
HRWC Board
September 20, 2019
ATTACHMENT 2

Issue Date: September 2019

Halifax Water – Financial Approval List

(Amounts shown on a before-tax basis)

CORPORATE SERVICES & GM's OFFICE	ENGINEERING & INFORMATION SERVICES	REGULATORY SERVICES	WATER SERVICES	WASTEWATER / STORMWATER SERVICES

Approvals – Up to $75,000
(Over $75,000 requires any two signatures)

General Manager				
Director, Corporate Services / CFO	Director, Engineering & IS	Director, Regulatory Services	Director, Water Services	Director, WW & SW Services

Approvals – Up to $25,000

Corporate Legal Counsel	Infrastructure Engineer	Development Engineer	Manager: • Water Quality • Watershed	Biosolids Coordinator, Aerotech
Manager: • Accounting • Customer Care • Finance • Human Resources • Metering & Billing • Procurement	Intermediate Project Engineer	Environmental Engineer: • I & I • P2	Operations Engineer	Manager: • Wastewater Infrastructure Engineering
	Manager: • Asset Management • Engineering Information • Information Services • Infrastructure Program • Energy & WW Treatment Infrastructure Engineering • Stormwater Infrastructure Engineering • Water Infrastructure Engineering	Infrastructure Engineer	Plant Supervisor	Senior Supervisor – Halifax WWTP
		Manager: • Engineering Approvals • Environmental Engineering • Safety & Security	Superintendent: • Regional Operations • Technical Services • Water Supply Plant	Superintendent: • HHSP • Regional • Treatment Facilities
		Project Manager: Engineering Approvals		Supervisor: • Fleet Maintenance & Bldg. • WPCP • WWTP
	Project Manager: • Asset Management • Design & Construction	Stormwater Engineer		
	Senior Project Manager			
	Water Infrastructure Project Engineer			
	WW SW Infrastructure			
	Project Engineer			
	WWTF Project Engineer			

Approvals – Up to $10,000

Communications & Public Relations Manager	Asset Management Program Coordinator		Supervisor: • Electrical & Instrumentation • SCADA & ICS Security • SCADA & Process Control • Water Quality Program	Supervisor: • Collection System Operations • Construction Collection • Pumping Station Collection
Billing Supervisor	Business Solutions Coordinator			
	GIS Updating Coordinator			
	Information Services Project Manager			
	Technical Coordinator • GIS • Information Services		Works Supervisor	Works Supervisor
	Senior Business Analyst			

Approvals – Up to $5,000

Admin. Assistant II	Engineering Approvals Technologist		Industrial Electrician	
Compensation & Benefits Specialist			Lead Operator: • Small Systems • Water Supply Plant	
Human Resource Consultant				
Supervisor: • Customer Administration • Customer Service Quality • Metering				

Approvals – Up to $2,500

Admin. Assistant I	Admin. Assistant I	Office Assistant II	Admin. Assistant I	Admin. Assistant II
Billing Coordinator-Data Processing Clerk	Office Assistant I		Office Assistant II	Construction Collection Sub Foreman
Communications Associate	Office Assistant II		Operations Support	Pumping Station Collection Sub Foreman
Legal Assistant			Sub Foreman	Works Advisor
Office Assistant II				
Procurement Assistant				
Record Analyst				

Halifax Water
Halifax Regional Water Commission

ITEM # 6
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA, Director, Corporate Services

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, FCPA, CGA, ICD.D, General Manager

DATE: September 18, 2019

SUBJECT: **2019 Fall Debenture**

ORIGIN

Halifax Regional Water Commission (HRWC) participation in the Fall 2019 Municipal Finance Corporation (MFC) Debenture issue to secure the final debt financing for 2018/19 additions to utility plant in service.

RECOMMENDATION

It is recommended that the Halifax Water Board:

1. Approve the financing of $30,000,000 for a ten year term with a twenty year amortization schedule and an all-inclusive rate not to exceed 5.5%.
2. Approve the financing of $6,500,000 for a ten year term with a ten year amortization schedule and an all-inclusive rate not to exceed 5.5%.

BACKGROUND

The HRWC is legally required to borrow through the MFC. The borrowing proposed in this report is consistent with the Five Year Business Plan, and the Approved Operating and Capital Budgets for 2018/19 and 2019/20, 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. Though a lower interest rate cost is secured for the first ten years, there is a risk that interest rates will be higher at the time the balloon payment is due for refinancing.

The 2018/19 Capital and Operating Budgets were prepared based on funding that included $37.2 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, the full amount of the planned debt is not required; only $30.0 million in new debt will be issued at this time.

An additional $39.9 of debt is planned to fund the 2019/20 Capital Budget. This is expected to be issued in 2020. The acquisition of debt following completion of capital projects aligns with the expectations of MFC.

The $30.0 million will be applied to Water, Wastewater, and Stormwater as follows:

Water	$11.0 million
Wastewater	$15.0 million
Stormwater	$4.0 million

In addition to the new debt required, a balloon payment is also due on an existing debt issue. In 2009/10, new debt of $13 million was acquired to fund the Wastewater Capital expenditures related to the Halifax Harbour Solutions Project. Debt was acquired for a ten year term with a twenty year amortization. A balloon payment of $6.5 million is due October 27, which will be refinanced for the remaining ten years.

The new issue can be expected to have a slightly lower interest rate than the original issue. The 2009 Debenture had an interest rate of 4.15%. Our current Weighted Average Cost of Debt is 3.36% and the Fall 2018 Debenture had an interest rate of 3.42%.

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

HRWC's debt is covered by a blanket guaranteed approved by Halifax Regional Municipality (HRM) Council in September 2014. The blanket guarantee will apply to all HRWC debt with a condition that HRWC must maintain a debt service ratio of 35% or less. HRWC's debt service ratio is 18.3% as of August 31, 2019. 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).

HRWC's outstanding debt at March 31, 2019 (including the current portion) was $208.3 million, and debt is projected to be $220.1 million at March 31, 2020.

BUDGET IMPLICATIONS

The 2019/20 budget includes $28.2 million in debt servicing. Actual costs, including requirements for this debt request, are expected to be less than budgeted. HRWC's capital financing strategy is designed to maintain a debt service ratio of 35% or less; and to use a mixture of infrastructure funding, development related charges (reserves), depreciation, and debt.

ALTERNATIVES

HRWC could choose to forgo participation in the 2019 Fall Debenture and defer issuance of debt until spring 2020, however there is not sufficient cash available for forecasted expenditures over this timeframe. Also, the full twenty year financing could be secured at a higher cost in the near term to avoid the risk of higher interest rates when the debt is to be re-financed after ten years.

ATTACHMENTS

1. Borrowing Resolution for $30.0 mllion in new debt and $6.5 million debt renewal
2. Cash Flow Model for 2019/20 based on approved Operating and Capital Budgets

Report prepared by: *Original Signed By:*

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

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 for the purpose of financing regular additions to utility plant in service f or a 20 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 $30,000,000 for a ten year term with a twenty-year amortization schedule and $6,500,000 for a ten year term with a ten-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 27, 2019.

_____
Heidi Schedler
Corporate Secretary and Legal Counsel

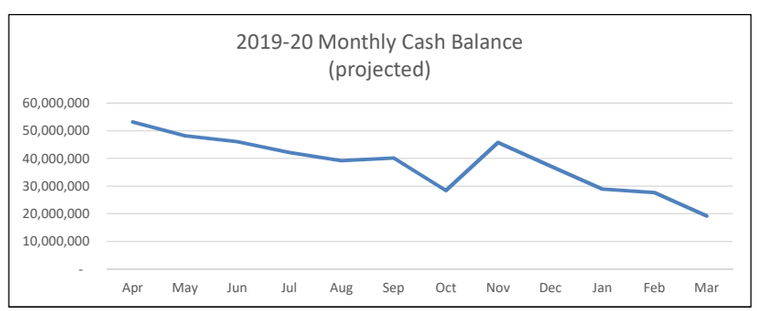
Halifax Water
Cash Flow Model for 2019-20
Actuals to date and forecast

	Original Budget	Forecast	Adjustments for Cash Flow	Planned Cash Flow	Actual Apr	Actual May	Actual Jun	Actual Jul	Actual Aug	Forecasted Sep	Forecasted Oct	Forecasted Nov	Forecasted Dec	Forecasted Jan	Forecasted Feb	Forecasted Mar	Forecasted Total
Operating Revenue	138,786,164	138,786,164	-	138,786,164	10,301,210	10,281,961	10,546,248	11,412,086	11,449,021	20,148,277	11,156,398	10,656,398	10,656,398	10,356,398	10,356,398	12,273,904	139,594,700
Operating Expenses	(93,818,588)	(93,818,588)	5,668,367	(88,150,221)	(5,898,357)	(8,303,161)	(6,764,775)	(6,548,080)	(6,813,669)	(7,129,185)	(8,429,185)	(7,129,185)	(7,129,185)	(7,129,185)	(7,129,185)	(7,129,185)	(85,532,338)
Non Op Revenue	1,310,149	1,310,149	-	1,310,149	171,538	133,934	127,794	119,010	116,061	109,179	109,179	109,179	109,179	109,179	109,179	109,179	1,432,592
Non Op Expenses	(60,311,974)	(60,311,974)	23,891,555	(36,420,419)	(159,632)	(4,255,555)	(540,007)	(1,945,728)	-	(6,464,425)	(7,534,632)	(9,165,283)	(109,320)	(324,560)	-	(5,954,294)	(36,453,436)
Operations Total	(14,034,249)	(14,034,249)	29,559,922	15,525,673	4,414,759	(2,142,821)	3,369,261	3,037,288	4,751,414	6,663,846	(4,698,240)	(5,528,890)	3,527,072	3,011,832	3,336,392	(700,396)	19,041,518
Capital Expenditures (incl CCC projects)	(73,348,000)	(88,970,638)	-	(88,970,638)	(3,919,113)	(5,417,217)	(4,190,487)	(7,520,734)	(3,397,096)	(6,489,177)	(9,149,593)	(14,214,093)	(14,053,786)	(12,328,838)	(8,885,179)	(11,935,562)	(101,500,875)
New Long Term Debt	46,404,892	36,500,000	(273,750)	36,226,250	-	-	-	-	-	-	-	36,226,250	-	-	-	-	36,226,250
Other Incoming Cash (Build Can, RDC, etc)	15,256,552	19,085,494	-	19,085,494	2,863,344	1,101,113	512,654	2,708,898	304,858	879,667	2,198,657	955,167	2,198,657	1,027,667	2,346,657	1,390,668	18,488,005
Changes in working capital	-	-	-	-	(1,777,221)	1,510,935	(1,836,153)	(2,198,937)	(4,558,226)	(150,000)	(100,000)	(100,000)	(100,000)	(100,000)	2,000,000	2,704,999	(4,704,603)
Net Cash Flow	(25,720,805)	(47,419,393)	29,286,172	(18,133,221)	1,581,770	(4,947,991)	(2,144,726)	(3,973,485)	(2,899,050)	904,336	(11,749,176)	17,338,433	(8,428,057)	(8,389,339)	(1,202,130)	(8,540,291)	(32,449,705)
Opening Cash Balance				51,603,377	51,603,377	53,185,146	48,237,155	46,092,429	42,118,944	39,219,894	40,124,231	28,375,055	45,713,488	37,285,431	28,896,092	27,693,962	51,603,377
Ending Cash Balance				33,470,155	53,185,146	48,237,155	46,092,429	42,118,944	39,219,894	40,124,231	28,375,055	45,713,488	37,285,431	28,896,092	27,693,962	19,153,671	19,153,671

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 2019-20 Capital Budget projects, projects carried over from 2018-19, and additional CCC project payments
- The new Long Term Debt anticipated in this forecast is for $30.0m in new debt and a $6.5m balloon renewal
- Other Incoming Cash includes $5.7 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



TO: **Russell Walker,** Vice-Acting Chair, and
Members of the Halifax Water Board of Commissioners

SUBMITTED BY: *Original Signed By:*
Kenda MacKenzie, P.Eng.
Director, Regulatory Services

APPROVED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA/CGA, ICD.D
General Manager

DATE: September 26, 2019

SUBJECT: **Geizer Hill High Service Area**
Capital Cost Contribution Charge Revision

ORIGIN

August 2, 2012	Halifax Water Board Report Approved
May 12, 2014	Capital Cost Contribution Charge for Geizer Hill High Service Area NSUARB Approved – M06159

RECOMMENDATION

Halifax Water staff recommend the Halifax Water Board approve:

- A revised Capital Cost Contribution (CCC) (2014 base year) charge of $266.49 per person for the Geizer Hill High Service Area.

- Preparation and submission of application for the required Nova Scotia Utility and Review Board (NSUARB) approval to revise the charge.

EXECUTIVE SUMMARY

In March 2010, Halifax Water entered into a purchase and sale agreement with Halifax Regional Municipality (HRM) for the sale of surplus lands adjacent to the Geizer Hill Reservoir and Chain Lake Watershed to facilitate the extension of the Washmill Drive underpass to Bayers Lake Business Park. These surplus lands were at an elevation greater than could be served by the existing water distribution system. Clause 14 of the purchase and sale agreement committed Halifax Water to evaluate the design and construction of a boosted water system to be financed through a capital cost contribution (CCC) charge for this parcel and all benefitting lands within this newly created water pressure zone.

Subsequently, HRM entered into a purchase and sale agreement, as well as a development agreement, with Clayton Developments Limited (CDL) to enable the development of the surplus lands remaining after the road extension was completed. In addition to the lands owned by CDL, three other developable parcels were identified to be included within the new pressure zone.

Halifax Water participated in the review of the oversized infrastructure required to provide service to the Geizer Hill charge area. The evaluation of the infrastructure was in keeping with the CCC policies contained within Attachment 3 of Schedule A – Halifax Water's Schedule of Rules and Regulations for Water, Wastewater and Stormwater Services.

A financial model was prepared for, and approved by, the NSUARB in 2014. This financial model itemized the oversizing component of all of the master infrastructure and phasing plan, resulted in a base charge for water of $342.91/person. The purchase and sale agreement between HRM and CDL stipulated a fixed population permitted on each lot. The other developable parcels required a development agreement with HRM that would prescribe the population on each parcel. Within the 2014 NSUARB application Halifax Water committed to returning to the NSUARB to adjust the charge rate based on the final populations achieved in the development agreement.

The oversized water infrastructure installed within Geizer Hill High Service Area had no benefit to the existing Halifax Water customers.

The financial model was prepared with the objective of identifying and mitigating financial risks, ensuring the net present value of cumulative cash flows is positive, and that customer water rates do not subsidize costs that are the responsibility of the developer.

A new financial model is proposed utilizing the same financial frame work, oversized water infrastructure installed to date and proposed to be installed, a new phasing plan established with stakeholders, and the HRM Council approved updated population density, which results in a revised CCC (2014 base year) water charge of $266.49/person.

The Capital Cost Contribution Charge for Geizer Hill High Service Area is subject to review and approval by the NSUARB.

BACKGROUND

Halifax Water engaged CBCL Limited in 2012 to undertake the review of the existing system and develop a servicing strategy for the future Geizer Hill development. The hydraulic grade line in the existing water transmission main and Geizer 158 reservoir are both at elevation 158 metres. With the development at 149 metres in elevation, the static water pressures would have been less than 13 psi, which is 27 psi less than Halifax Water's minimum design pressure. Therefore, in order to provide water service to the Geizer Hill development a booster station was required.

There were eight developable parcels of land within this elevation and that would benefit from boosting of the water system pressure.

The water service district map, prepared by CBCL Limited, is shown in Attachment A. A booster station, including a fire pump, has been constructed and connected to the 750 mm diameter water main within Washmill Lake Drive. The lands are serviced by an oversized (400 mm diameter) water main that is proposed from the booster station to the eastern boundary of the reservoir site (future Regency Park Drive extension). To date, 450 metres of 400 mm water main has been installed with another 200 metres to be installed with future phases. A local 300 mm diameter main is required within the Regency Park Drive extension.

The initial CCC charge was based on the populations projections of benefitting lands listed in Table 1. A combination of fixed population set in the HRM/CDL development agreement and densities outlined in the 1982 Mainland North Servicing Strategy prepared for the former City of Halifax by DPA Consulting & Associates were used. Where the allowable density may vary slightly and given the small overall area of the benefitting lands, it was more reasonable to establish charge based on a per person basis as opposed to a per acre charge.

Table 1 – Geizer Hill Water Service District – Benefiting Developable Lands (2014)

Parcel ID	Developer	Development Type Area (acres)	Population
41342403	CDL (Block B) [1]	52.1	1416
41342395	CDL (Block C) [1]		
41331174	CDL (Block D) [1]		
41331166	CDL (WLD-1) [1]		
41177387	CDL (HW-1) [1]		
40550774	Septra (Golf Course Lands) [2]	23.5	705
00330845	Septra (CHUM) [2]	10.0	300
41177403	Septra (Halifax Water) [3,4]	13.3	534
	Total	**99.0**	**2955**

[1] Approved Development Agreement with Clayton Developments Limited & HRM 2012
[2] Population Density of 30 ppa based on the *Mainland North Servicing Strategy*
[3] Purchase and Sale Agreement in place between Septra Inc. and Halifax Water subject to Septra obtaining final subdivision approval
[4] Population Density of 40 ppa based on the *Mainland North Servicing Strategy*

The Mainland North Servicing Strategy was never ratified by HRM Council, but it is the document that guided the development of Clayton Park and Clayton Park West for the past 37 years.

There were no existing Halifax Water customers within the benefitting lands; therefore, Halifax Water is not contributing capital funds towards installation of this booster water system.

There are no wastewater or stormwater infrastructure components that are being oversized to accommodate this master plan area, therefore, wastewater and stormwater CCC charges were not required.

DISCUSSION

Septra Incorporated (Septra) entered into a Stage I development agreement with Halifax Regional Municipality. A copy of the development agreement can be found in Attachment B. Section 3.6.4 of that agreement set specific unit counts for the 9 phases of Septra's lands. Table 2 converts the unit counts from the development agreement to a population using 3.35 persons per unit for single unit dwellings and townhouses and 2.25 people per unit for multi units.

Table 2 – Geizer Hill Water Service District – Benefiting Developable Lands (2019)

Parcel ID	Developer	Phase	Development Type Area (acre)	Population (people)
41342403	CDL (Block B) [1]		52.138	1416
41342395	CDL (Block C) [1]			
41331174	CDL (Block D) [1]			
41331166	CDL (WLD-1) [1]			
41177387	CDL (HW-1) [1]			
00330845	Septra (CHUM) [2]	Phase 1	5.000	201
00330845	Septra (CHUM) [2]	Phase 2	5.000	225
41177403	Septra (Halifax Water) [2, 3]	Phase 3	13.344	495
40550774	Septra (Golf Course Lands) [2]	Phase 4	3.917	261
40550774	Septra (Golf Course Lands) [2]	Phase 5	3.917	261
40550774	Septra (Golf Course Lands) [2]	Phase 6	3.917	261
40550774	Septra (Golf Course Lands) [2]	Phase 7	3.917	261
40550774	Septra (Golf Course Lands) [2]	Phase 8	3.917	621
40550774	Septra (Golf Course Lands) [2]	Phase 9	3.917	216
		Total	**99.0**	**4218**

[1] Approved Development Agreement with Clayton Developments Limited & HRM 2012.
[2] Approved Development Agreement with Septra, Halifax Water & HRM 2019.
[3] Purchase and Sale Agreement in place between Septra Inc. and Halifax Water subject to Septra obtaining final subdivision approval.

Section 5.1 of Halifax Water's 2014 Capital Cost Contribution Charge for Geizer Hill High Service Area application contemplated Septra obtaining higher density through the development agreement process. At that time Halifax Water proposed returning to the NSUARB for a CCC charge revision should a new development agreement increase the as-of-right population density.

CCC Rate Determination

Halifax Water's CCC policy section 17 provides the criteria for developing the cost of oversized infrastructure within a charge area.

Section 17: Oversized Infrastructure Criteria

a) *Oversizing Criteria*

The cost of providing Oversized water, Wastewater and Stormwater Infrastructure will be funded through the WWS CCCs levied in a charge area.

The cost of providing Oversized water, Wastewater and Stormwater Infrastructure may also include discrete upgrades of, or new connections to, existing systems outside of the charge area.

There are several methods of calculating the oversize cost, which generally fall into one of the following categories:

i. *Incremental basis:*

Where the oversize cost would be calculated by determining the incremental or marginal cost of up-sizing to the required Oversized water, Wastewater and Stormwater Infrastructure defined in the Master Plan. This method is most fairly applied if there is a base value or benefit associated with providing the minimum service requirements without considering oversizing. For the purpose of oversizing, minimum service requirements would be those necessary to provide service to an area being developed and may be based on minimum pipe sizes and local road standards.

ii. *Flow Proportioning:*

The incremental costs of the oversized component(s) in a Master Plan Area may be distributed amongst the land owners on a flow proportionate basis as determined by their allowable densities noted in the Municipal Planning Strategies or land use in the Land Use Bylaws.

iii. Capacity basis:

Where the oversize cost is determined on the basis of capacity allocated to the charge area. The cost to be recovered through a WWS CCC would be calculated by pro-rating total cost on the basis of capacity. This method is most fairly applied for a discrete upgrade of an existing system outside of the charge area.

b) Water, Wastewater and Stormwater Systems within a Charge Area

The oversized costs to provide Water, Wastewater and Stormwater Systems within a charge area will be determined on an incremental basis. There are various methods for calculating incremental costs of piped systems:

i. Dual Design Method:

Where the oversize cost is determined by deducting the total cost of the minimum required pipe size from the total cost of the oversized pipe.

ii. Cost Ratio Method:

This method assumes a direct relationship between the cost of providing a service and the size of the pipe. A cost factor can be determined and applied similar to the Cost Sharing Policy of the former City of Halifax, or a simple percentage based on nominal dimensions may be applied.

c) Infrastructure Exterior to a Charge Area

The portion of the cost of an upgrade, expansion, or provision of a discrete component of water, Wastewater and Stormwater infrastructure to be recovered through a WWS CCC will be determined on the basis of capacity allocated to the charge area.

The oversized water infrastructure components and date of installation are listed in Attachment C – Phase Costs. These infrastructure costs are escalated to allow for engineering design (10%), contingency (15%), net harmonized sales tax (4.286%) and year of construction. The 37% for fire protection portion is deducted prior to the net escalated costs being adjusted to reflect interest during construction.

The phase costs were apportioned based on phase projection and balance financing was applied. Attachment D summarizes the Geizer Hill High Service Area CCC charge financial model (base year 2014).

Attachment E states the assumptions used in the Geizer Hill High Service Area CCC charge calculation and Attachment F provides a summary of the CCC charge calculation.

Water Infrastructure CCC Rate: $ 266.49/person.

Stakeholder Consultation

There are two stakeholder impacted by a revised CCC charge, CDL and Septra. The CCC charge is proposed to go down, based on increased population.

CDL's 2014 CCC payment was $485,564, because of the revised CCC charge CDL is subject to a refund of $108,209.76. CDL was advised of the CCC charge revision and offered no objection.

Septra would make CCC payments as their development progresses. The CCC charge would be updated annually, April 1 of every year by Halifax Consumer Price Index published by Statistics Canada. Septra was advised of the CCC charge revision and offered no objection.

BUDGET IMPLICATIONS

Capital Cost Charge Areas as per the policy approved by the NSUARB are designed to be cost neutral to Halifax Water. The CCC and recoverable financing will have cash flow implications to Halifax Water, but with the completion of the development area cost neutrality will be achieved.

ALTERNATIVES

There are no alternatives. The CCC must be adjusted downward to avoid an over-collection.

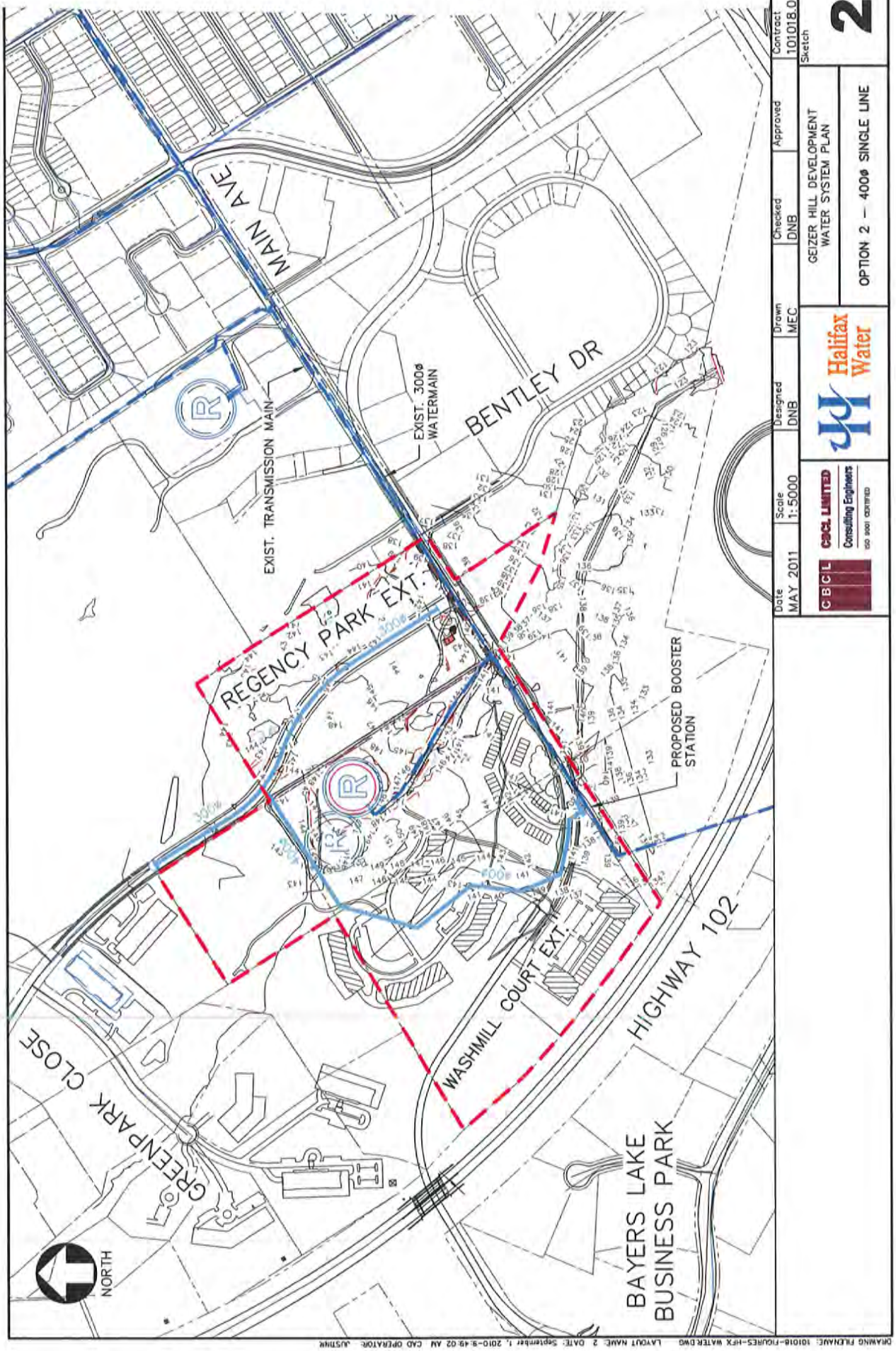
ATTACHMENTS:

Attachment A	Geizer Hill – Water Service District Map
Attachment B	Geizer Hill – Septra Development Agreement
Attachment C	Geizer Hill – CCC Oversized Water Infrastructure Phase Costs
Attachment D	Geizer Hill – CCC Financial Model
Attachment E	Geizer Hill – Assumptions
Attachment F	Geizer Hill – Water CCC Charge Summary

Report Prepared By: *Original Signed By:*
Kevin Gray, MURP, P.Eng.,
Manager, Engineering Approvals
(902) 490-5939

Financial Approved By: *Original Signed By:*
Allan Campbell, B.Comm., CPA, CMA
Manager, Finance
(902) 266-8655

Attachment A – Option 2 - 400 diameter Single Line



Attachment B

Form 24

Purpose: to change the registered interest, benefits or burdens

(Instrument code: 450)
(If change(s) requested relate(s) to one or more of the following and no other interests are being added or removed on this form: manner of tenure, description of manner of tenure, non-resident status, parcel access or NSFLB occupant. Note: This form cannot be used to correct an error in a parcel register).

(Instrument code: 451)
(Change to existing servient or dominant tenement PID number in a parcel register as a result of subdivision or consolidation. Note: This form cannot be used to correct an error in a parcel register)

For Office Use

Registration district: Halifax County

Submitter's user number: 500002147

Submitter's name: Peter Claman

HALIFAX COUNTY LAND REGISTRATION OFFICE
I certify that this document was registered or recorded as shown here.
Kim MacKay, Registrar
11434695 1 LRD RODD
Document #
Apr. 23, 2019 11:55 pm
MM DD YYYY Time

In the matter of Parcel Identification Number (PID)

PID	00330845	40550774
PID	41177403	

*(Expand box for additional PIDs, **maximum 9 PIDs per form**)*

The following additional forms are being submitted simultaneously with this form and relate to the attached document (check appropriate boxes, if applicable):

☐ Form 24(s)

☐ Form 8A(s)

Additional information *(check appropriate boxes, if applicable):*

☐ This Form 24 creates or is part of a subdivision or consolidation.

☐ This Form 24 is a municipal or provincial street or road transfer.

☐ This Form 24 is adding a corresponding benefit or burden as a result of an AFR of another parcel.

☐ *This Form 24 is adding a benefit or burden where the corresponding benefit/burden in the "flip-side" parcel is already identified in the LR parcel register and no further forms are required.*

Power of attorney *(Note: completion of this section is mandatory)*

☐ The attached document is signed by attorney for a person under a power of attorney, and the power of attorney is:
- ☐ recorded in the attorney roll
- ☐ recorded in the parcel register
- ☐ incorporated in the document

OR

x No power of attorney applies to this document

May 4, 2009

The following burdens are to be added and/or removed in the parcel register(s):
(Note: An amending PDCA is required if the changes being made to the burden section are not currently reflected in the description in the parcel register).

Instrument type	Agreement re Use of Land
Interest holder and type to he removed *(if applicable)*	n/a
Interest holder and type to be added *(if applicable)* *Note: include qualifier (e.g., estate of, executor, trustee, personal representative) (if applicable)*	Halifax Regional Municipality – Party to Agreement (Burden)
Mailing address of interest holder to be added *(if applicable)*	PO Box 1749 Halifax, NS B3J 3A5
Reference to related instrument in names-based roll/parcel register *(if applicable)*	n/a
Reason for removal of interest *(for use only when interest is being removed by operation of law)* ***Instrument code: 443***	n/a

Certificate of Legal Effect:

I certify that, in my professional opinion, it is appropriate to make the changes to the parcel register(s) as instructed on this form.

Dated at Halifax, in the County of Halifax, Province of Nova Scotia, on March 27 2019

Signature of authorized lawyer

Name: Peter Claman

Address: 7071 Bayers Road, Suite 4004

Phone: 902-492-4000

E-mail: claman@claman.com

Fax: 902-492-4001

☐ This document also affects non-land registration parcels. The original will be registered under the *Registry Act* and a certified true copy for recording under the *Land Registration Act* is attached.

THIS STAGE I DEVELOPMENT AGREEMENT made this 12 ~~22~~ day of ~~March~~ April, 20 19

BETWEEN:

HFX. REG. WATER COMM.
REGULATORY SERVICES
REVIEWED AND APPROVED
FOR EXECUTION
MAR 27 2019
KEVIN GRAY P.Eng.

Approved as to Form
and Authority
Solicitor

SEPTRA INCORPORATED
a body corporate, in the Province of Nova Scotia
(hereinafter called the "Developer")

OF THE FIRST PART

- and -

HALIFAX REGIONAL WATER COMMISSION
a body corporate, in the Province of Nova Scotia
(hereinafter called the "Developer")

OF THE SECOND PART

- and -

HALIFAX REGIONAL MUNCIPALITY
a municipal body corporate, in the Province of
Nova Scotia (hereinafter called the "Municipality")

OF THE THIRD PART

WHEREAS Septra Incorporated is the registered owner of certain lands located at in Clayton Park, along Regency Park Drive and Washmill Lake Drive, Halifax, comprising of parcels identified as PID 00330845 and PID 40550774;

AND WHEREAS Halifax Regional Water Commission is the registered owner of certain lands located in Clayton Park, along Regency Park Drive and Washmill Lake Drive, Halifax, comprising of parcels identified as PID 41177403;

AND WHEREAS said lands are more particularly described in Schedule A hereto (hereinafter called the "Lands");

AND WHEREAS the Developer has requested that the Municipality enter into a Development Agreement to allow for a mixed-use development consisting of residential and commercial uses on the Lands pursuant to the provisions of the *Halifax Regional Municipality Charter,* Implementation Policies 3.3 of the Halifax Municipal Planning Strategy, and Section 68 of the Halifax Mainland Land Use By-law;

AND WHEREAS Halifax and West Community Council for the Municipality approved this request at a meeting held on November 14, 2018 referenced as **Municipal Case Number 19532**;

THEREFORE in consideration of the benefits accrued to each party from the covenants herein contained, the Parties agree as follows:

PART 1: GENERAL REQUIREMENTS AND ADMINISTRATION

1.1 Applicability of Agreement

1.1.1 The Developer agrees that the Lands shall be developed and used only in accordance with and subject to the terms and conditions of this Agreement.

1.2 Applicability of Land Use By-law and Subdivision By-law

1.2.1 Except as otherwise provided for herein, the development, use and subdivision of the Lands shall comply with the requirements of the Land Use By-law for Halifax Mainland and the Regional Subdivision By-law, as may be amended from time to time.

1.3 Applicability of Other By-laws, Statutes and Regulations

1.3.1 Further to Section 1.2, nothing in this Agreement shall exempt or be taken to exempt the Developer, lot owner or any other person from complying with the requirements of any by-law of the Municipality applicable to the Lands (other than the Land Use By-law for Halifax Mainland to the extent varied by this Agreement), or any statute or regulation of the Provincial/Federal Government and the Developer or Lot Owner agree(s) to observe and comply with all such laws, by-laws and regulations, as may be amended from time to time, in connection with the development and use of the Lands.

1.3.2 The Developer shall be responsible for securing all applicable approvals associated with the on-site and off-site servicing systems required to accommodate the development, including but not limited to sanitary sewer system, water supply system, stormwater sewer and drainage system, and utilities. Such approvals shall be obtained in accordance with all applicable by-laws, standards, policies, and regulations of the Municipality and other approval agencies. All costs associated with the supply and installation of all servicing systems and utilities shall be the responsibility of the Developer. All design drawings and information shall be certified by a Professional Engineer or appropriate professional as required by this Agreement or other approval agencies.

1.4 Conflict

1.4.1 Where the provisions of this Agreement conflict with those of any by-law of the Municipality applicable to the Lands (other than the Land Use By-law for Halifax Mainland to the extent varied by this Agreement) or any provincial or federal statute or regulation, the higher or more stringent requirements shall prevail.

1.4.2 Where the written text of this Agreement conflicts with information provided in the Schedules attached to this Agreement, the written text of this Agreement shall prevail.

1.5 Costs, Expenses, Liabilities and Obligations

1.5.1 The Developer shall be responsible for all costs, expenses, liabilities and obligations imposed under or incurred in order to satisfy the terms of this Agreement and all Federal, Provincial and Municipal laws, by-laws, regulations and codes applicable to the Lands.

1.6 Provisions Severable

1.6.1 The provisions of this Agreement are severable from one another and the invalidity or unenforceability of one provision shall not affect the validity or enforceability of any other provision.

1.7 Lands

1.7.1 The Developer hereby represents and warrants to the Municipality that the Developer is the owner of the Lands and that all owners of the Lands have entered into this Agreement.

PART 2: DEFINITIONS

2.1 Words Not Defined under this Agreement

2.1.1 All words unless otherwise specifically defined herein shall be as defined in Land Use By-law for Halifax Mainland and the Regional Subdivision By-law, if not defined in these documents their customary meaning shall apply.

2.2 Definitions Specific to this Agreement

2.2.1 The following words used in this Agreement shall be defined as follows:

(a) *"Commercial Use"* means the use of a building for office purposes, for buying and selling goods, or for providing services, or a combination thereof.

(b) *"Drive-Through"* means premises that include a designated stacking aisle for motor vehicles, which provide or dispense products or services using an attendant, window, or automated machine, to customers in motor vehicles.

(c) *"Grocery Store"* means a retail establishment with at least 200 square metres of gross floor area that primarily sells food and that may also sell other convenience and household goods.

(d) *"Home Occupation"* means the use of a portion of a dwelling unit for gainful employment, excluding a bed and breakfast use or day care use.

(e) *"Home Office"* means an office-related activity operated within a dwelling that does not require direct contact with clients on the premises.

(f) *"Kennels"* means premises used for the keeping of more than two dogs for the purposes of commercial breeding, used for the keeping of one or more dogs which are not owned by the occupant for the purposes of one or more of showing, grooming, training, and caring; or for the commercial boarding of more than 12 dogs with or without veterinary care.

(g) *"Drinking Establishment"* means a drinking establishment with a capacity of 60 seats or fewer, and which is licensed under the *Nova Scotia Liquor Control Act*.

(h) *"Micro-Brewery"* means a craft brewery primarily engaged in the production and packaging of less than 15,000 hectolitres per year of specialty or craft beer, ale, or other malt beverages. The facility may include accessory uses such as retail sale, wholesale, tours and events or hospitality room, where beverages produced at the facility can be sampled.

(i) *"Multiple-Unit Building"* means a building containing three or more dwelling units, and commercial uses at the base of the building.

(j) *"Open Space Use"* means the use of open space for public and private parks and playgrounds, athletic fields, tennis courts, lawn bowling greens, outdoor skating rinks, picnic areas, cemeteries, day camps, historic sites or monuments, and similar uses to the foregoing, together with the necessary accessory structures. This definition excludes commercial camping grounds, golf courses, and tracks for the racing of animals or motor vehicles.

(k) *"Playground"* means an area landscaped with hard and soft materials that includes dedicated play equipment such as swings, slides, sandboxes, and jungle gyms.

(l) *"Pawn Shops"* means premises where a person may give, pledge, or deposit goods as security for the payment of a debt or return of a loan, excluding financial institution uses.

(m) *"Restaurant"* means premises whose primary purpose is to prepare, serve, and sell food, non-alcoholic beverages, or both, for consumption on or off the premises. Restaurants may be licensed to serve alcoholic beverages, but this must be incidental to the primary business. Restaurants may include cafes, table service, dine-in, take-out, and home delivery services, excluding a standalone catering.

(n) *"Retail Use"* means premises used for the selling or renting of merchandise, including second-hand goods, directly to the walk-in public. Retail uses may also include the servicing and repair of items like those being sold. Shopping centres, post offices, and car or truck rental offices are considered retail uses.

(o) *"Rooftop Greenhouse"* means a permanent structure located on a roof and constructed primarily of transparent materials, which is devoted to the protection and cultivation of medicinal, food producing, and ornamental plants such as vegetables, fruits, herbs, sprouts, and flowers.

(p) *"Service Station Uses"* means premises used for the retailing of motor vehicle fuels, lubricants, and accessories, the repair and servicing of motor vehicles indoors, motor vehicle inspections, or car wash facilities.

(q) *"Service Uses"* means a business whose primary work is call-out, such as exterminators, plumbers, carpet cleaners, locksmiths, electricians, tow trucks, and to provide catering off site.

(r) *"Storey"* means that portion of a building between any floor and floor or any floor and ceiling, any portion of a building partly below grade shall not be deemed to be a storey unless its ceiling is at least 2 metres above grade.

(s) *"Urban Agriculture"* means the use of a structure or land for the breeding, planting, cultivation, or harvesting of plants, excluding cannabis, such as vegetables, fruits, herbs, sprouts, and ornamental plants and flowers.

(t) *"Warehousing uses"* means a building or part of a building for storage, wholesale, and distribution of manufactured products, supplies, and equipment, excluding a wholesale food production use, and the storage of materials that are flammable, explosive, or that present hazards.

PART 3: USE OF LANDS, SUBDIVISION AND DEVELOPMENT PROVISIONS

3.1 Schedules

3.1.1 The Developer shall develop the Lands in a manner, which in the opinion of the Development Officer generally conforms to the following Schedules attached to this Agreement and filled in the Halifax Regional Municipality as **Case 19532**:

Schedule A	Legal Description of the Lands
Schedule B	Master Site Plan
Schedule C	Phasing Plan
Schedule D	Site & Architectural Design Requirements - Townhouses
Schedule E	Site & Architectural Design Requirements - Multiple-Unit Residential and Commercial Buildings

3.1.2 The Master Site Plan and Phasing Plan for the development of the Lands contained in Schedules B and C shall form the basis for negotiation and approval of any Stage II Development Agreement.

3.1.3 Municipal permits for site and building development for any phase shall only be granted for development of the Lands after approval by Halifax and West Community Council, and registration at the Land Registry Office, of a Stage II Development Agreement for that associated phase.

3.1.4 Notwithstanding Section 3.1.3, final design approval may be granted for site preparation and, road and infrastructure development after the approval of the Stage I Development Agreement by Halifax and West Community Council and registration of the Stage I Development Agreement.

3.2 General Description of Land Use

3.2.1 The development of the Lands shall comprise a mixed-use development consisting of residential and commercial uses within nine (9) Phases, as generally shown on Schedule B and C;

3.2.2 The uses of the Lands permitted by this Agreement are the following:

Residential uses, consisting of Townhouses and Multiple-Unit Buildings;

(a) Commercial uses, as permitted under the C-2A (Minor Commercial) Zone of the Land Use By-law for Mainland Halifax;

(b) Commercial uses, in addition those permitted in 3.2.2(b), including:
  (i) Drinking establishment use;
  (ii) Grocery store use;
  (iii) Micro-brewery use; and
  (iv) Retail use.

(c) Urban Agriculture uses;

(d) Open Space uses;
(e) Community facility uses, as permitted under the C-2A (Minor Commercial) Zone of the Land Use By-law for Mainland Halifax; and
(f) Accessory uses to the foregoing such as, but not limited to, home occupation, and home office.

3.2.3 The development of residential uses shall comply with the following:

(a) The maximum number of dwelling units, inclusive of all types identified in Section 3.2.2(a) shall be 1,216 dwelling units, subject to all requirements of this Agreement; and
(b) The development of the Lands shall be comprised of a mix of residential dwelling types, as identified in Section 3.2.2(a), and as generally shown on Schedule B of this Agreement.

3.2.4 The development of commercial uses shall comply with the following:

(a) The maximum total gross floor area of the commercial uses on the Lands shall be 14,010 square metres (150,800 square feet), subject to the requirements of this Agreement;
(b) Commercial uses permitted under Section 3.2.2(b) and 3.2.2(c) shall only be permitted within the first and second levels of buildings fronting on Regency Park Drive, as shown on Schedule B; and
(c) Drive-throughs shall be prohibited in all phases.

3.2.5 Urban agricultural uses shall comply with the following:

(a) The processing of urban agricultural products, such as chopping, packaging, pickling, or preserving, shall be permitted as an accessory use to a main urban agriculture use; and
(b) A rooftop greenhouse shall be permitted to be used as an accessory to a main urban agriculture use.

3.2.6 The development of the Lands for open space uses shall be comprised of:

(a) Parkland dedication in the form of land, identified as Park Area 1 and Park Area 2, located in Phase 1 and between phases 7 and 8, as shown on Schedule B and subject to Section 3.9 of this Agreement; and
(b) An outdoor amenity space consisting of playgrounds, located within Phases 6 and 7 as shown on Schedule B.

3.2.7 The development of community facilities shall comply with the regulations of the Land Use By-law for Mainland Halifax, as amended from time to time.

3.2.8 Accessory use, home occupation use, and home office use shall conform with the following:

(a) The following uses shall be prohibited as a home occupation:
    (i) retail uses, except for the accessory retail of products associated with a permitted home occupation;
    (ii) restaurant uses;
    (iii) drinking establishment uses;
    (iv) service station uses;
    (v) service uses;
    (vi) pawn shops;
    (vii) warehousing uses; and
    (viii) kennel uses.
(b) Home occupations shall not be permitted in any Multiple-Unit Building, or accessory structures.
(c) Home offices are permitted in all dwellings.
(d) The principal operator of a home occupation or home office shall reside in the dwelling where the use is located.
(e) Outdoor storage, and the outdoor display of goods, equipment, or material, are prohibited in association with a home occupation or home office.

3.2.9 The location of land uses and buildings shall generally conform with Schedule B.

3.2.10 Building heights shall comply with Sections 3.6, and 3.7 of this Agreement, and building design shall comply with the architectural design requirements detailed in Schedules D and E of this Agreement.

3.3 Requirements Prior to Permit Approval

Subdivision Approval

3.3.1 Prior to granting the subdivision approval for road and infrastructure development, and municipal permits for site preparation under the Stage I Development Agreement, the Developer shall:

(a) obtain final design approval from the Municipality to subdivide the Lands pursuant to Sections 3.8.1 and 3.8.2, Schedule B and C of this Agreement, and the Regional Subdivision By-law as amended from time to time;
(b) provide copies of all watercourse and wetland alteration permit(s) from the Nova Scotia Department of Environment; and
(c) provide an erosion and sedimentation control plan, in accordance with the requirements of Part 5 of this Agreement.

Stage II Development Agreements

3.3.2 Building development on the Lands shall be subject to the approval of a Stage II Development Agreement for any phase.

3.3.3 Prior to the consideration of any Stage II Development Agreement, the Developer shall:

(a) submit a Concept Plan for the subject phase which meets the requirements of the Regional Subdivision By-law, as amended from time to time;
(b) provide copies of all watercourse and wetland alteration permit(s) from Nova Scotia Environment;
(c) Provide a Wastewater Capacity Analysis for the subject phase;
(d) provide a certification of the subdivision grading plan, in accordance with the requirements of Part 5 of this Agreement; and
(e) provide verification that the maximum number of dwelling units has not been exceeded in accordance with the requirements of this Agreement.

3.3.4 Notwithstanding Section 3.3.3 of this Agreement, site preparation, including clearing or grubbing that is associated with each phase or the development of municipal streets, may occur prior to the approval and registration of the individual Stage II Development Agreements.

3.4 Phasing

3.4.1 The development of the Lands shall be completed in nine (9) non-consecutive Phases, as generally shown on Schedule C.

3.4.2 Prior to construction of any phase, or portion thereof, a Municipal Service Agreement shall be signed in accordance with the Regional Subdivision By-Law, this Stage I Agreement, and the required Stage II Development Agreement.

3.4.3 The development of Phase 1 shall proceed through the approval of a Stage II Development Agreement for the Lands, as generally shown on Schedule C. The Agreement shall address the following:

(a) Final subdivision design of phase 1, as generally shown on Schedule C;
(b) All primary and secondary services associated with phase 1;
(c) Residential uses shall consist of townhouses and accessory uses, as generally shown on Schedules B and C, and meet the requirements of section 3.6 of this Agreement;
(d) Further to Section 3.4.3(c), the development of townhouses shall conform with the design regulations included in Schedule D;
(e) Provisions to regulate the size and location of urban agriculture uses, community facility

uses and accessory uses; and

(f) Conveyance of Parkland Area 1 to the Municipality in accordance with Section 3.9 of this Agreement.

3.4.4 The development of Phase 2 shall proceed through the approval of a Stage II Development Agreement for the Lands, as generally shown on Schedule C. The Agreement shall address the following:

(a) Final subdivision design of Phase 2, as generally shown on Schedule C;
(b) All primary and secondary services associated with Phase 2;
(c) Residential uses shall comprise a single multiple-unit building, consisting of residential uses, subject to Section 3.6 and 3.7 of this Agreement;
(d) Commercial uses shall be limited to day care use and grocery store use;
(e) Building heights, in accordance with Section 3.6;
(f) Detailed building design, in accordance with the architectural design regulations included in Schedule E;
(g) Provisions to regulate the size and location of commercial uses identified in Section 3.4.4(d); and
(h) Provisions to regulate the size and location of urban agriculture uses, community facility uses and accessory uses.

3.4.5 The development of Phase 3 shall proceed through the approval of a Stage II Development Agreement for the Lands, as generally shown on Schedule C. The Agreement shall address the following:

(a) Final subdivision design of the specific Phase, as generally shown on Schedule C;
(b) All primary and secondary services associated with the development of that phase, and as determined by the Municipality;
(c) Residential uses shall comprise two multiple-unit buildings, consisting of residential uses, as shown on Schedule B, and subject to Sections 3.6 and 3.7 of this Agreement;
(d) Commercial uses identified under Section 3.2.2(b) and 3.2.2(c) shall be permitted within the first level of the multiple-unit buildings;
(e) Provisions to regulate the size, location, as well as hours of operations for uses identified in Section 3.2.2(b), 3.2.2(c), and 3.4.5(d);
(f) Building heights, in accordance with Section 3.6;
(g) Detailed building design, in accordance with the architectural design regulations included in Schedule E; and
(h) Provisions to regulate the size and location of urban agriculture uses, community facility uses and accessory uses.

3.4.6 The development of phases 4, 5, 6 and 7 shall proceed through the approval of a Stage II Development Agreement for the Lands, as generally shown on Schedule C. The Agreement shall address the following:

(a) Final subdivision design of the specific phase, as generally shown on Schedule C;
(b) All primary and secondary services associated with the development of that phase, and as determined by the Municipality;
(c) Residential uses shall be limited to multiple-unit buildings, as shown on Schedule B, and subject to Section 3.6 of this Agreement;
(d) Commercial uses identified under Section 3.2.2(b) and 3.2.2(c) shall be permitted within the first and second levels of the multiple-unit buildings;
(e) Provisions to regulate the size, location, as well as hours of operations for uses identified in Section 3.2.2(b), 3.2.2 (c), and 3.4.6(d);
(f) Building heights, in accordance with Section 3.6;
(g) Detailed building design, in accordance with the architectural design requirements included in Schedule E; and
(h) Provisions to regulate the size and location of urban agriculture uses, community facility uses and accessory uses.

3.4.7 The development of phases 8 and 9 shall proceed through the approval of a Stage II Development Agreement for the Lands, as generally shown on Schedule C. The Agreement shall address the following:

(a) Final subdivision design of the specific phase, as generally shown on Schedule C;
(b) All primary and secondary services associated with the development of that phase, and as determined by the Municipality;
(c) Residential uses shall be limited to multiple-unit buildings, as shown on Schedule B, and subject to Sections 3.6 and 3.7 of this Agreement;
(d) Commercial uses identified under Section 3.2.2(b) and 3.2.2(c) shall be permitted within the first level of the multiple-unit buildings;
(e) Provisions to regulate the size, location, as well as hours of operations for uses identified in Section 3.2.2(b) and 3.4.5(d);
(f) Building heights, in accordance with Section 3.6;
(g) Detailed building design, in accordance with the architectural design requirements included in Schedule E;
(h) Provisions to regulate the size and location of urban agriculture uses, community facility uses and accessory uses; and
(i) Conveyance of Parkland Area 2 to the Municipality in accordance with Section 3.9 of this Agreement.

3.5 Stage II Development Agreements

3.5.1 In addition to the information required by Section 68 of the Halifax Mainland Land Use By-law, the following information shall be submitted with any planning application for a Stage II Development Agreement:

(a) Letter of Intent detailing the proposal and building design;
(b) Building plans that comply with Section 3.6 of this Agreement;
(c) Design rationale detailing compliance with the architectural requirements identified in Schedules D and E;
(d) Residential Unit Tracking Chart;
(e) A Landscaping plan, pursuant to Section 3.10 of this Agreement; and
(f) Subdivision Plans, which comply with requirements of Section 87 of the Regional Subdivision By-law, as amended from time to time, and show the following information:
    (i) Municipal services including but not limited to schematic plans for sanitary sewer, storm sewer and water supply;
    (ii) Required easements (including location, size and purpose);
    (iii) Utilities (including but not limited to power, gas, propane, lighting); and
    (iv) Streetscape designs.

3.5.2 Further to Section 3.5.1 of this Agreement, the following information shall be submitted with any application for a Stage II Development Agreement for those portions of the development that include residential uses:

(a) Vehicular access and egress points, parking area layout, number of parking spaces and driveway locations;
(b) Site plans showing building footprints, lot coverage, setbacks and accessory structures;
(c) Building plans and elevations, showing exterior appearance of the building including signage, architectural detailing and all construction materials;
(d) Provision and identification of useable indoor and outdoor amenity areas, as well as features, facilities and site furnishings;
(e) Landscaping plans including planting details and specifications;
(f) Location and treatment of loading or service areas, mechanical units, fuel storage tanks, air conditioning units, refuse and recyclable storage facilities and utility supply facilities;
(g) Location of bicycle access routes and bicycle parking;
(h) Site disturbance plan and preliminary grading plan; and
(i) Environmental protection information, including preliminary site drainage plan, preliminary erosion and sediment control plans and preliminary stormwater management plans.

3.5.3 Further to subsection 3.5.2(e) all landscaping plans shall include a tree planting program that reflects the objectives of the HRM Urban Forest Master Plan and shall be submitted to the Development officer and the Urban Forester of the Municipality for review and recommendation.

3.6 Land Use Controls and Architectural Requirements

Townhouse Development

3.6.1 The development of townhouses, as determined through a Stage II Development Agreement, shall conform with the provisions of the R-2T (Townhouse) Zone of the Land Use By-law for Mainland Halifax with exception of lot coverage. Lot coverage provisions shall be determined and detailed as part of the Stage II Development Agreement.

3.6.2 Further to Section 3.6.1, the development of townhouses shall also conform with the site and architectural design requirements detailed in Schedule D.

Multiple-Unit Residential and Commercial Buildings Development

3.6.3 The development of multiple-unit buildings consisting of residential and commercial uses, as determined through a Stage II Development Agreement, shall conform with the site and architectural design requirements detailed in Schedule E.

3.6.4 The development of multiple-unit buildings consisting of residential and commercial uses within phases 2 through 9 shall comply with the following maximum heights:

	Number of Buildings	Building Parameters	
		Number of Storeys (per building)	Number of Units (per phase)
Phase 1	N/A	N/A	60
Phase 2	1	8	100
Phase 3*	2	11 *(each building)*	220
Phase 4*	1	9 and 5*	116
Phase 5*	1	9 and 5*	116
Phase 6*	1	9 and 5*	116
Phase 7*	1	9 and 5*	116
Phase 8	3	12 *(each building)*	276
Phase 9	1	8	96

*Buildings in Phases 4, 5, 6 and 7 are designed to consist of one building with two heights. The maximum of 9 storeys with a transition in height to up to 5 storeys.

3.6.5 Notwithstanding 3.6.4, height requirements shall not apply to elevator enclosure, an elevator enclosure above a structure required for elevator access to rooftop amenity space, flag pole, antenna, heating, ventilation, air conditioning equipment or enclosure of such equipment, skylight, chimney, landscape vegetation, clock tower, solar collector, roof top cupola, parapet, cornices, eaves, penthouses or other similar features provided that the total of all such features, shall occupy in the aggregate less than 30 % of the area of the roof of the building on which they are located

3.7 Number of Units

3.7.1 Multiple-unit buildings shall comprise of bachelor units, one-bedroom units, two-bedrooms units or more.

3.7.2 One-bedroom plus den units shall be considered a one-bedroom unit, and two-bedrooms plus den shall be considered a two-bedroom unit.

3.7.3 A minimum of 40% of the residential units per building in each phase shall consist of two or more bedrooms.

3.7.4 A maximum of 30 units per phase may be transferred between phases provided that once the maximum number of units transferred is achieved, no additional transfers shall occur.

3.7.5 The Developer shall provide Unit Tracking Chart to the Municipality with each application to develop a phase, and to the Development Officer with each application for a permit.

3.7.6 Further to 3.7.4, dwelling unit distribution in each phase shall be achieved by adjusting the number of dwelling units transferred in or out of each phase under the Stage I Development Agreement, subject to Section 6.2.1(a).

3.8 Subdivision of the Lands

3.8.1 Subdivision applications shall be submitted to the Development Officer in accordance with the Phasing Plan, generally shown on Schedule C and identified in Section 3.4 of this Agreement. The Development Officer shall grant subdivision approval subject to and in accordance with Section 3.8.

3.8.2 The development of the Lands shall be completed in nine (9) phases, as shown on Schedule C. All subdivision of the Lands shall meet the requirements of the Subdivision By-law except where specifically varied by this Agreement.

3.8.3 This Agreement shall be deemed to meet the requirements of the Subdivision By-law with respect to concept plan approval.

3.8.4 The Development Officer shall grant subdivision approval for nine (9) phases, as generally shown on Schedule C, and provided that all applicable sections of the Regional Subdivision By-law have been met.

3.8.5 Further subdivision approval for each phase shall be subject to the terms of this Agreement, the approval of a Stage II Development Agreement for the associated Phase, and the requirements of the Regional Subdivision By-law.

3.8.6 Nothwithstanding Section 3.8.5, frontage along a public street shall not be required for the subdivision approval for the nine (9) phases, as shown on Schedules B and C.

3.8.7 Final subdivision applications shall be submitted to the Development Officer in accordance with the Phasing Plan presented as Schedule C, and the Development Officer shall grant subdivision approvals for the phase or area for which approval is sought subject to and in accordance with the following terms and conditions:

(a) Applications for subdivision approval shall include all phases, as indicated on Schedule B;
(b) Final subdivision approval for any phase(s) shall not be granted until final approval has been granted for the previous phase;
(c) The Development Officer, in consultation with the Development Engineer, may vary the sequence of phasing; and
(d) Notwithstanding subsection 3.8.7(b), the Development Officer may grant final subdivision approval of all phases prior to granting final approval for the previous Area if the Developer submits performance security in the amount of 110 percent of the estimated cost of uncompleted services or if the Development Engineer determines that the portion of the incomplete phases is non-essential to the greater service network.

3.8.8 Unless otherwise acceptable to Development Officer, prior to acceptance of any Municipal Service system, the Developer shall provide to the Development Officer a certification from a qualified professional engineer indicating that the Developer has complied with the Stormwater Management Plan required pursuant to this Agreement.

3.8.9 Further to Section 4.1.4, site preparation, clearing, excavation or blasting activities, for each phase or portion thereof shall not occur until the Developer provides a subdivision grading plan to the Development Officer indicating where lot disturbance is to occur at the time of construction of municipal services, as set out in this Agreement.

3.8.10 A subdivision application for each phase shall include a unit-tracking chart indicating:

(a) the total number of units permitted by this Agreement;
(b) the number of dwelling units for which municipal development permit applications are expected to be sought;
(c) the number of dwelling units which have received or are expected to receive municipal development permit approvals from previous subdivision applications submitted for the development pursuant to the provisions of this Agreement; and
(d) the number of dwelling units transferred in to or out of the phase from another phase. This table shall be attached to the application. A copy of this table shall be forwarded to the Development Engineer and Halifax Water.

3.8.11 Each subdivision application for each phase shall include a total population chart and capacities permitted by this Agreement, sewer calculations for each dwelling unit, institutional uses and commercial lands which municipal development permit applications are expected to be sought and the sewer calculations for the number of dwelling units, institutional uses and commercial lands which have received or are expected to receive municipal development permit approvals from previous subdivision applications submitted for the development pursuant to the provisions of this Agreement. The table shall also include the number of dwelling units and population transferred in to or out of the phase from another phase. This table shall be attached to the application. A copy of this table shall be forwarded to the Development Engineer and Halifax Water.

3.8.12 Building lots shown on the schedules of this Stage I Development Agreement are conceptual in nature, the exact quantity and location of lots are not defined by this Agreement.

3.9 Parkland Dedication

3.9.1 The Developer shall provide parkland dedication in the form of land and equivalent value pursuant to the requirements of the Regional Subdivision By-law and as outlined in this section.

3.9.2 Parkland and Open Space dedication via land acquisition shall substantially conform with the locations, dimensions, site improvements and site preparation areas shown on Schedules B and C with the final adjustments to configuration and grades of the site preparation areas to be agreed upon by Parkland Planning and the Developer prior to subdivision approval being granted. The Development Officer may permit variations to lot configuration, provided that appropriate access and road frontage is maintained, and the total area of land is not reduced and the proposed parkland meets the requirements of Parkland Planning. The parkland dedication shall include identified parkland, site development including but not limited to neighborhood park facilities, and trails. All site preparation and development shall meet the requirements of the Municipality.

3.9.3 Parkland shall be provided in two parcels, as shown on Schedules B and C. All Parkland shall:

(a) meet the definition of "usable land" as found in the HRM Regional Subdivision By-Law;
(b) be free of encumbrances pursuant to the requirements of the HRM Regional Subdivision By-law; and
(c) be designed according to the principles of CPTED (Community Protection Through Environmental Design).

3.9.4 The detailed design of Parkland Area 1 shall be determined through the Stage II Development Agreement, as generally shown on Schedule B and C. At a minimum the Parkland Parcel shall be subject to the following requirements:

Location	Southwestern corner of Phase 1
Street Frontage	30 metres (98.42 feet)
Park Area	1,100 square metres (0.27 acres)
Width of Public Trail	1.8 metres (5.90 feet)
Compliance	Parkland Area 1 shall be designed to comply with the criteria of a Neighbourhood Park as outlined in the Regional Subdivision By-law.
Design	Parkland Area 1 shall include the design and construction of a 1.8-metre

	wide public trail connecting to the Geizer Hill Trail.
Completion	Parkland Area 1 shall be completed and deeded to the Municipality prior to the completion of Phase 1

3.9.5 The detailed design of Parkland Area 2 shall be determined through the Stage II Development Agreement for Phases 4, 7 and 8, as generally shown on Schedule B and C. At a minimum the Parkland Parcel shall be subject to the following requirements:

Location	North of phases 4, 7 and 8
Street Frontage	30 metres (98.42 feet)
Park Area	15,985 square metres (3.95 acres)
Width of Public Trail	2.0 metres (6.56 feet)
Compliance	Portions of Parkland Area 2, which do not comply with the definition of "useable land", shall be conveyed to the Municipality as Conservation Land.
Design	Parkland Area 2 shall include the design and construction of a 2-metre wide public trail, connecting to the Geizer Hill Trail. Such trail shall not exceed a preferred slope of 5%, although a slope to a maximum of 8% may be acceptable if agreed to be the Parkland Planner.
Completion	Through the detailed design of the Parkland Area 2 during the Stage II Development Agreements, minor changes to the requirements of Section 3.5 and 3.6 are permitted if such changes will improve the overall park design as determined by the Parkland Planner of the Municipality.

3.9.6 Further to Subsections 3.9.3 through to 3.9.5, and Schedules B and C, the following provisions shall apply:

(a) Trails shall be of sufficient length to provide the connections shown on the Schedules.
(b) All trails shall be located outside of the 1 in 10-year floodplain and allow for a 5-metre buffer where possible to adjacent properties.
(c) Site preparation shall be in the form of a prepared pad with approximate area and dimensions as shown on Schedule B, including topsoil (or equivalent) and hydro-seed grass mixture.
(d) Where a trail crosses a watercourse or wetland, the crossing shall be designed and constructed subject to the following:
    (i) The crossing shall be designed by a qualified professional.
    (ii) The design shall be submitted to the Development Engineer for review.
    (iii) Subsequent to the construction of any crossing and prior to the acceptance by the Municipality of the parkland and infrastructure, the Developer shall provide a letter by a qualified professional indicating that the crossing conforms with the approved design.
    (iv) All crossings shall be designed and constructed in accordance with Nova Scotia Environment requirements.
    (v) Crossings shall meet the future maintenance and operational requirements of the Municipality.
    (vi) All work shall meet the requirements of HRM Parkland Planning.
(e) Where a trail crosses any watercourse, the location of the crossing shall meet the requirements of the Municipality. Where a crossing varies from the schedules, the Development Officer shall permit variations to the Schedules to enable the relocation of the crossing and any reconfiguration of parkland boundaries.

3.10 Landscaping

3.10.1 All plant material shall conform to the Canadian Nursery Trades Association Metric Guide Specifications and Standards and sodded areas to the Canadian Nursery Sod Growers Specifications. The Landscape Plan shall be prepared by a Landscape Architect (a full member, in good standing with Canadian Society of Landscape Architects).

3.10.2 Prior to the issuance of a development permit for all multi-unit buildings, the Developer agrees to provide a landscape plan, which complies with the provisions of this section. The landscape plan

shall be prepared by a Landscape Architect (a full member, in good standing with Canadian Society of Landscape Architects) and shall illustrate:

(a) landscaping to be introduced to all areas disturbed during construction;
(b) natural vegetation, landscaping or screening is to be employed around parking areas and measures are taken to allow for safe and convenient pedestrian access to public entrances of buildings; and
(c) walkways extending from the entrances of buildings to a public sidewalk in front of the building and to any public trail system abutting the property;

3.10.3 All disturbed areas shall be reinstated to original condition or better with landscaping.

3.10.4 Prior to the occupancy of the first multi-unit building, the Developer shall submit to the Development Officer a letter prepared by a member in good standing of the Canadian Society of Landscape Architects certifying that all landscaping has been completed according to the terms of this Development Agreement.

3.10.5 Notwithstanding Section 3.10.4, where the weather and time of year does not allow the completion of the outstanding landscape works prior to building occupancy, the Developer may supply security in the amount of 110 percent of the estimated cost to complete the landscaping. The cost estimate is to be prepared by a member in good standing of the Canadian Society of Landscape Architects or a qualified person. The security shall be in favour of the Municipality and shall be in the form of a certified cheque or automatically renewing, irrevocable letter of credit issued by a chartered bank. The security shall be returned to the Developer only upon completion of the work as described herein and illustrated on the Schedules, and as approved by the Development Officer. Should the Developer not complete the landscaping within twelve months of building occupancy, the Municipality may use the deposit to complete the landscaping as set out in this section of the Agreement. The Developer shall be responsible for all costs in this regard exceeding the deposit. The security deposit or unused portion of the security deposit shall be returned to the Developer upon completion of the work and its certification.

3.10.6 For multi-unit buildings securities for the completion of outstanding on-site paving and landscaping work may be permitted. Such securities shall be not less than an amount which is 110 percent of the estimated cost to complete the work. The security shall be in favour of the Municipality and may be in the form of a certified cheque or irrevocable automatically renewing letter of credit issued by a chartered bank. The security shall be returned to the Developer by the Development Officer when all outstanding work is satisfactorily completed.

3.10.7 The Developer shall plant a minimum of one (1) tree on each lot designated for townhouse unit, which is greater than or equal to 15.24 metres (50 feet) in width. Each tree shall be a type, which is indigenous to Nova Scotia with a minimum height of 1.52 metres (5 feet) and a minimum diameter of 5 centimeters (2 inches). The location of the tree shall not interfere with services. The Development Officer may vary or waive the standard where it is determined that placement of tree(s) are not possible. No Occupancy Permit shall be granted unless this requirement has been satisfied or performance security has been provided, in form acceptable to the Development Officer, in the amount of one hundred and ten percent (110%) of the estimated cost of planting the required tree or trees as the case may be.

3.11 Site Lighting

3.11.1 Lighting shall be directed to driveways, parking areas, loading area, building entrances and walkways and shall be arranged so as to divert the light away from streets, adjacent lots and buildings.

3.11.2 Security lighting for multiple-unit buildings shall be directed to all walkways and parking areas. Freestanding security lighting shall not exceed a height of 5.4m (18 feet). All exterior lighting shall be directed downwards with luminaries shielded to prevent unnecessary glare.

3.11.3 The Developer shall prepare an exterior lighting plan for any townhouses and multiple-unit buildings and submit it to the Development Officer for review to determine compliance with this Agreement.

The lighting plan shall contain, but shall not be limited to, the following:

(a) Plans indicating the location on the premises, and the type of illuminating devices, fixtures, lamps, supports, other devices;
(b) The lighting plan shall include certification from a qualified person that the lighting plan meets the requirements of this Agreement; and
(c) Prior to building occupancy, the Developer shall provide to the Development Officer a written confirmation from a qualified person that the installation of lighting meets the requirements of this Agreement.

3.12 Screening

3.12.1 Townhouses, and multiple-unit buildings, consisting of residential and commercial uses, with communal refuse containers located outside the building shall be fully screened from adjacent properties and from streets by means of opaque fencing or masonry walls with suitable landscaping.

3.12.2 Townhouse buildings, and multiple-unit buildings, consisting of residential and commercial uses, with propane tanks and electrical transformers shall locate the tanks and transformers in such a way to ensure minimal visual impact from any street and adjacent residential properties. These facilities shall be secured in accordance with the applicable approval agencies and screened by means of opaque fencing or masonry walls with suitable landscaping.

3.12.3 Mechanical equipment shall be permitted on the roof of multiple-unit buildings, consisting of residential and commercial uses provided the equipment is screened or incorporated in to the architectural treatments and roof structure. Rooftop mechanical equipment shall not be visible from any street.

3.12.4 Any ground or wall mounted mechanical equipment shall be screened from view from any street or residential properties with a combination of fencing, landscaping or building elements.

3.13 Maintenance

3.13.1 The Developer shall maintain and keep in good repair all portions of the development on the Lands, including but not limited to, the exterior of the building, fencing, walkways, recreational amenities, parking areas and driveways, and the maintenance of all landscaping including the replacement of damaged or dead plant stock, trimming and litter control, garbage removal and snow and ice control, salting of walkways and driveways.

3.14 Temporary Construction Building

3.14.1 A building(s) shall be permitted on the Lands for the purpose of housing equipment, materials and office related matters relating to the construction and sale of the development in accordance with this Agreement. The construction building(s) shall be removed from the Lands prior to the issuance of the last Occupancy Permit on the subject lands.

3.15 Solid Waste Facilities - Multiple-Unit Buildings

3.15.1 All solid waste facilities shall be in accordance with By-law S-600 (Solid Waste Resource Collection and Disposal By-Law) as amended from time to time.

3.15.2 The building shall include designated space for five stream commercial waste containers (1. Garbage, 2. Blue Bag Recyclables, 3. Paper, 4. Corrugated Cardboard, and 5. Organics) to accommodate source separation programs in accordance with By-law S-600. This designated space for five (5) waste containers shall be shown on the building plans and approved by the Development Officer and Building Inspector in consultation with HRM Solid Waste Resources.

3.15.3 Refuse containers and waste compactors shall be confined to the loading areas or internal to each building, and shall be screened from public view where necessary by means of opaque fencing or masonry walls with suitable landscaping.

3.15.4 All refuse and recycling materials shall be contained within a building, or within suitable containers which are fully screened from view from any street or sidewalk. Further, consideration shall be given to locating of all refuse and recycling material to ensure minimal effect on abutting property owners by means of opaque fencing or masonry walls with suitable landscaping.

PART 4: STREETS AND MUNICIPAL SERVICES

4.1 General Provisions

4.1.1 All design and construction of Municipal service systems shall satisfy the requirements of the HRM Municipal Design Guideslines, as well as Halifax Water Design and Construction Specifications and shall receive written approval from the Development Engineer prior to undertaking the work.

4.1.2 Any disturbance to existing off-site infrastructure resulting from the development, including but not limited to, streets, sidewalks, curbs and gutters, street trees, landscaped areas and utilities, shall be the responsibility of the Developer, and shall be reinstated, removed, replaced or relocated by the Developer as directed by the Development Officer, in consultation with the Development Engineer.

4.1.3 All underground services shall be as per the Regional Subdivision By-law.

4.1.4 The Developer shall not commence clearing, excavation or blasting activities required for the installation of primary or secondary services in association with a subdivision prior to receiving final approval of the subdivision design unless otherwise permitted by the Development Officer, in consultation with the Development Engineer. Where oversized infrastructure to serve the development is to be installed by or on behalf of Halifax Water, the Development Officer may permit commencement of clearing, excavation or blasting activities required for the installation prior to the developer receiving final approval of the subdivision design.

4.1.5 Nothing in this Agreement shall preclude the Developer from storing or removing rocks, soils or grubbing materials from other phases established, provided that permission has been granted by the Engineer and all required municipal and provincial approvals have been obtained.

4.2 Streets

4.2.1 The street network shall be developed as generally shown on Schedules B and C. All street construction shall satisfy Municipal Design Guidelines unless otherwise provided for in this Agreement and shall receive written approval from the Development Engineer prior to undertaking the work. The Development Officer, in consultation with the Development Engineer, may give consideration to minor changes to the street network, provided the modifications serve to maintain or enhance the intent of this Agreement.

4.2.2 Further to Section 4.2.1, the Development Officer, in consultation with the Development Engineer, may approve the development of Regency Park Drive Extension after the approval of the Stage I Development Agreement.

4.2.3 The Developer shall construct a pedestrian circulation and walkway system as required by the Subdivision By-law, and the Municipal Design Guidelines. The land for secondary trails shall be deeded to the Municipality. The system shall include where required easements in favour of the Municipality and/or Halifax Water or any other Utility. For further clarity, where a road is constructed, a corresponding sidewalk shall be required as per the Municipal Design Guidelines, except as specifically varied by this Agreement.

PART 5: ENVIRONMENTAL PROTECTION MEASURES

5.1 Private Storm Water Facilities

5.1.1 All private storm water facilities shall be maintained in good order to maintain full storage capacity by the owner of the lot on which they are situated.

5.2 Stormwater Management Plan

5.2.1 Prior to the commencement of any site work on the Lands, including earth movement or tree removal other than that required for preliminary survey purposes, or associated off-site works, the Developer shall:

(a) Submit to the Development Officer a detailed Site Disturbance Plan, prepared by a Professional Engineer indicating the sequence and phasing of construction and the areas to be disturbed or undisturbed;

(b) Submit to the Development Officer a detailed Erosion and Sedimentation Control Plan prepared by a Professional Engineer in accordance with the Erosion and Sedimentation Control Handbook for Construction Sites as prepared and revised from time to time by Nova Scotia Environment. Notwithstanding other sections of this Agreement, no work is permitted on the Lands until the requirements of this clause have been met and implemented. The Erosion and Sedimentation Control Plan shall indicate the sequence of construction, all proposed detailed erosion and sedimentation control measures and interim stormwater management measures to be put in place prior to and during construction; and

(c) Submit to the Development Officer a detailed Site Grading and Stormwater Management Plan prepared by a Professional Engineer.

5.3 Subdivision and Lot Grading Plans

5.3.1 Any Subdivision Grading Plan submitted for subdivision approval shall be certified by a qualified professional that the plan conforms with the recommendations of the Master Stormwater Management Plan.

5.3.2 Any riparian buffer area shall be shown on any lot grading plan submitted pursuant to the requirements of the Municipality's Lot Grading By-law, as amended from time to time.

5.3.3 The Developer shall prepare lot grading plans which comply with the Subdivision Grading Plan. Modifications to the site grading and proposed finished elevations may be approved by the Development Engineer. The Developer shall provide written confirmation of compliance that the lot has been graded in accordance with the lot grading plan and, where it has been determined that any lot grading has not been properly carried out, remedial or corrective measures shall be carried out by the Developer at its cost.

5.3.4 No building shall be occupied unless the requirements of Section 5.3.3 have been satisfied or a security deposit for the completion of the work has been provided in accordance with the requirements of the Municipality's Grade Alteration By-law.

PART 6: AMENDMENTS

6.1 Substantive Amendments

6.1.1 Amendments to any matters not identified under Section 6.2 of this Agreement shall be deemed substantive and may only be amended in accordance with the approval requirements of the *Halifax Regional Municipality Charter.*

6.2 Non-Substantive Amendments

6.2.1 The following items are considered by all parties to be not substantive to the Stage I Development Agreement, and may be amended by resolution of Council:

(a) Transfer of a maximum of 30 units between phases as outlined in the Stage I development agreement, as identified in section 3.7.4;
(b) Approvals of any Stage II Development Agreement associated with this Stage I development agreement;
(c) Amendments to any Stage II Development Agreement associated with this development;
(d) Conveyance of additional parkland to the Municipality to that required in Section 3.9 of this Agreement, through consultation with the municipal Parkland Planner;
(e) Changes to the locations, sizes and configurations of parkland area and playgrounds;
(f) Changes to the proposed phasing, provided that needs of the Municipality and Halifax Water with regards to infrastructure are met;
(g) The granting of an extension to the date of Commencement of Development as identified in Section 7.3 of this Agreement; and
(h) The length of time for the Completion of Development as identified in Section 7.4 of this Agreement.

PART 7: REGISTRATION, EFFECT OF CONVEYANCES AND DISCHARGE

7.1 Registration

7.1.1 A copy of this Agreement and every amendment or discharge of this Agreement shall be recorded at the Registry of Deeds or Land Registry Office at Halifax, Nova Scotia and the Developer shall incur all costs in recording such documents.

7.2 Subsequent Owners

7.2.1 This Agreement shall be binding upon the parties thereto, their heirs, successors, assigns, mortgagees, lessees and all subsequent owners, and shall run with the Lands which is the subject of this Agreement until this Agreement is discharged by Council.

7.2.2 Upon the transfer of title to any lot(s), the subsequent owner(s) thereof shall observe and perform the terms and conditions of this Agreement to the extent applicable to the lot(s).

7.3 Commencement of Development

7.3.1 In the event that the Developer has not entered into a Stage II Development Agreement or development on the Lands has not commenced within four (4) years from the date of registration of this Agreement at the Registry of Deeds or Land Registry Office, as indicated herein, the Agreement shall have no further force or effect and henceforth the development of the Lands shall conform with the provisions of the Land Use By-law.

7.3.2 For the purposes of this section, commencement of construction shall mean site preparations and infrastructure construction.

7.3.3 For the purpose of this section, Council may consider granting an extension of the commencement of development time period through a resolution under Section 6.2 of this Agreement, if the Municipality receives a written request from the Developer at least 120 calendar days prior to the expiry of the commencement of development time period.

7.4 Completion of Development

7.4.1 If the Developer fails to complete the development, or phases of this development, after fifteen (15) years from the date of registration of this Agreement at Land Registration Office Council may review this Agreement, in whole or in part, and may:

(a) retain the Agreement in its present form;
(b) negotiate a new Agreement; or
(c) discharge this Agreement.

7.4.2 Upon the completion of the development, or phases of the development, Council may review this Agreement, in whole or in part, and may:

(a) retain the Agreement in its present form;
(b) negotiate a new Agreement;
(c) discharge this Agreement; or
(d) for those portions of the development which have been completed, discharge this Agreement and apply appropriate zoning pursuant to the Halifax Municipal Planning Strategy and Land Use By-law for Halifax Mainland, as may be amended from time to time.

PART 8: ENFORCEMENT AND RIGHTS AND REMEDIES ON DEFAULT

8.1 Enforcement

8.1.1 The Developer agrees that any officer appointed by the Municipality to enforce this Agreement shall be granted access onto the Lands during all reasonable hours without obtaining consent of the Developer. The Developer further agrees that, upon receiving written notification from an officer of the Municipality to inspect the interior of any building located on the Lands, the Developer agrees to allow for such an inspection during any reasonable hour within twenty-four hours of receiving such a request.

8.2 Failure to Comply

8.2.1 If the Developer fails to observe or perform any condition of this Agreement after the Municipality has given the Developer fourteen (14) days written notice of the failure or default, then in each such case:

(a) The Municipality shall be entitled to apply to any court of competent jurisdiction for injunctive relief including an order prohibiting the Developer from continuing such default and the Developer hereby submits to the jurisdiction of such Court and waives any defence based upon the allegation that damages would be an adequate remedy;
(b) The Municipality may enter onto the Lands and perform any of the covenants contained in this Agreement or take such remedial action as is considered necessary to correct a breach of the Agreement, whereupon all reasonable expenses whether arising out of the entry onto the Lands or from the performance of the covenants or remedial action, shall be a first lien on the Lands and be shown on any tax certificate issued under the *Assessment Act*;
(c) The Municipality may by resolution discharge this Agreement whereupon this Agreement shall have no further force or effect and henceforth the development of the Lands shall conform with the provisions of the Land Use By-law; or
(d) In addition to the above remedies, the Municipality reserves the right to pursue any other remedy under the *Halifax Regional Municipality Charter* or Common Law in order to ensure compliance with this Agreement.

IN WITNESS WHEREAS the said parties to these presents have hereunto set their hands and affixed their seals the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of:

Witness

SEPTRA INCORPORATED

Per:

Print Name: Joseph Ramia

Print Position: President

Witness

Per:

Print Name:

Print Position:

HALIFAX REGIONAL WATER COMMISSION

Witness

Per:

Print Name: Darlene Fenton

Print Position: Chair

Carl Yates, General Manager

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SEALED, DELIVERED AND ATTESTED to by the proper signing officers of Halifax Regional Municipality, duly authorized in that behalf, in the presence of:

Witness

Witness

HALIFAX REGIONAL MUNICIPALITY

Mayor Mike Savage

Municipal Clerk Kevin Arjoon

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX, NOVA SCOTIA

On this 27th day of March, A.D., 2019, before me, the subscriber personally came and appeared Natalie Shaffner a subscribing witness to the foregoing Indenture who having been by me duly sworn, made oath and said that **SEPTRA INCORPORATED**, one of the parties thereto, signed, sealed and delivered the same in his/her presence.

A Commissioner of the Supreme Court
of Nova Scotia
PETER CLARKE

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX, NOVA SCOTIA

On this 12 day of May, A.D., 2019, before me, the subscriber personally came and appeared Kelly MacDonald (Clerk's Secretary) the subscribing witness to the foregoing Indenture who being by me sworn, made oath, and said that Mike Savage, Mayor, and Kevin Arjoon, Clerk of the Halifax Regional Municipality, signed the same and affixed the seal of the said Municipality thereto in his/her presence.

their
KW

A Commissioner of the Supreme Court
of Nova Scotia

KRISTA VINING
A Commissioner of the
Supreme Court of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX, NOVA SCOTIA

On this 28 day of March, A.D., 2019, before me, the subscriber personally came and appeared Sandra Head a subscribing witness to the foregoing Indenture who having been by me duly sworn, made oath and said that **HALIFAX REGIONAL WATER COMMISSION**, one of the parties thereto, signed, sealed and delivered the same in his/her presence.

Lorna Skinner
A Commissioner of the Supreme Court
of Nova Scotia

LORNA M. SKINNER
A Commissioner of the Supreme Court of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX, NOVA SCOTIA

On this ____ day of _____, A.D., 20___, before me, the subscriber personally came and appeared _____ the subscribing witness to the foregoing Indenture who being by me sworn, made oath, and said that Mike Savage, Mayor, and Kevin Arjoon, Clerk of the Halifax Regional Municipality, signed the same and affixed the seal of the said Municipality thereto in his/her presence.

_____
A Commissioner of the Supreme Court
of Nova Scotia

Schedule "A" - Parcel 00330845

ALL that certain lot, piece or parcel of land situate on Gelzers Hill, County of Halifax, and shown as Lot A on Plan Showing Lots A and B, Gelzers Hill, Fairview, Halifax County, N.S., owned by Henry C. Deal dated April 19, 1956, made by J.D. McKenzie, P.L.S., approved by the Halifax County Planning Board April 23, 1956, and filed in the Registry of Deeds, Halifax, N.S., said Lot A being more particularly bounded and described as follows:

BEGINNING at the northwest corner of lands sold by the Grantor, Henry C. Deal to Joseph B. Pierson by deed dated July 30, 1923, and recorded in the Registry of Deeds, Halifax, N.S., in Book 570, Page 149;

THENCE north 80 degrees 30 minutes east along the northern boundary of said lands a distance of 660 feet or to the western boundary of lands now or formerly owned by the heirs of Cogswell;

THENCE north 09 degrees 59 minutes west along the western boundary of the last mentioned lands a distance of 660 feet to a point;

THENCE south 80 degrees 30 minutes west a distance of 660 feet or to the eastern boundary of lands now or formerly owned by Edward and William J. Clayton;

THENCE south 09 degrees 59 minutes east along the eastern boundary of the last named lands a distance of 660 feet or to the place of beginning.

Together with a 12 foot wide Right-of-Way over (PID 41177387) as described in a deed recorded June 17, 1959 at the Halifax County Registry of Deeds in Book 1619 at Page 86 as Document # 9569. Said Right of Way is also shown on Survey Plan # 95856176 registered May 6, 2010 at the Halifax County Land Registration Office.

Together with a 10 foot wide Right-of-Way over (PID 41177387) as described in an Easement Agreement recorded March 13, 1961 at the Halifax County Registry of Deeds in Book 1724 at Page 646 as Document # 4102. Said Right of Way is also shown on Survey Plan # 95856176 registered May 6, 2010 at the Halifax County Land Registration Office.

*** Municipal Government Act, Part IX Compliance ***

Compliance:

The parcel originates with an instrument (registration details below) and the subdivision is validated by Section 291 of the Municipal Government Act

Registration District: HALIFAX COUNTY
Registration Year: 1959
Book: 1619 Page: 86 Document Number: 9569

Schedule "A" - Parcel 40550774

Registration County: HALIFAX COUNTY
Street/Place Name: REGENCY PARK DRIVE /HALIFAX
Title of Plan: PLAN OF SURVEY OF PARCEL 2 TO BE S/D FROM BLOCK B1 LANDS OF THE CANADIAN BROADCASTING CORPORATION & CONSOLIDATED WITH LOT A1 LANDS OF SEPTRA INCORPORATED
Oesignation of Parcel on Plan: LOT A1-2
Registration Number of Plan: 99202922
Registration Date of Plan: 2011-09-27 10:26:31

Subject to Restrictive Covenants as set out in Schedule B appended to the Deed recorded at the Registry of Deeds in and for Halifax County, on September 27 2011 as Document No. 99202732 and pertaining only to that portion of the consolidated property which was conveyed as Parcel 2 by that said Deed.

*** Municipal Government Act, Part IX Compliance ***

Compliance:

The parcel is created by a subdivision (details below) that has been filed under the Registry Act or registered under the Land Registration Act
Registration District: HALIFAX COUNTY
Registration Year: 2011
Plan or Document Number: 99202922

Schedule 'A' – Parcel PID No. 41177403

All that lot, piece or parcel of land situate, lying and being near Chain Lakes in the County of Halifax, being the northern portion of Lot 2 of the lots in the rear of the Dutch Village lots, the said lot being bounded and described as follows:

Beginning at a point on the north boundary line of Lot No. 10 of the Dutch Village Lots, distant 625 feet, more or less, easterly from a granite boundary stone marked H. W. No. 16;

Thence North, 12, West for a distance of 60 chains, more or less, to the Geizer Road (so called);

Thence South, 78, West, for a distance of 20 chains, more or less, by the south side of said road;

Thence South, 12, East, for a distance of 60 chains, more or less, to the North boundary line of Lot No. 10;

Thence North, 78, East, along the said Northern boundary line of Lot No. 10 to the place of beginning;

The said lot being colored Yellow on a plan entitled Plan showing land near Chain Lakes to be acquired by the City of Halifax, dated February 6, 1894, signed by F.W. Doane, City Engineer, and on file in the City Engineers Office at Halifax.

Excepting therefrom all that portion of the Bicentennial Highway (Highway 102) as expropriated by Expropriation No.1697.

Also Excepting therefrom, all that portion of the above described Lot 2 which lies to the south of the Bicentennial Highway, having been severed from the northern portion of the said Lot 2 by Expropriation No. 1697.

Also saving and excepting Parcel 26A as shown on Land Registration Plan #84876813.

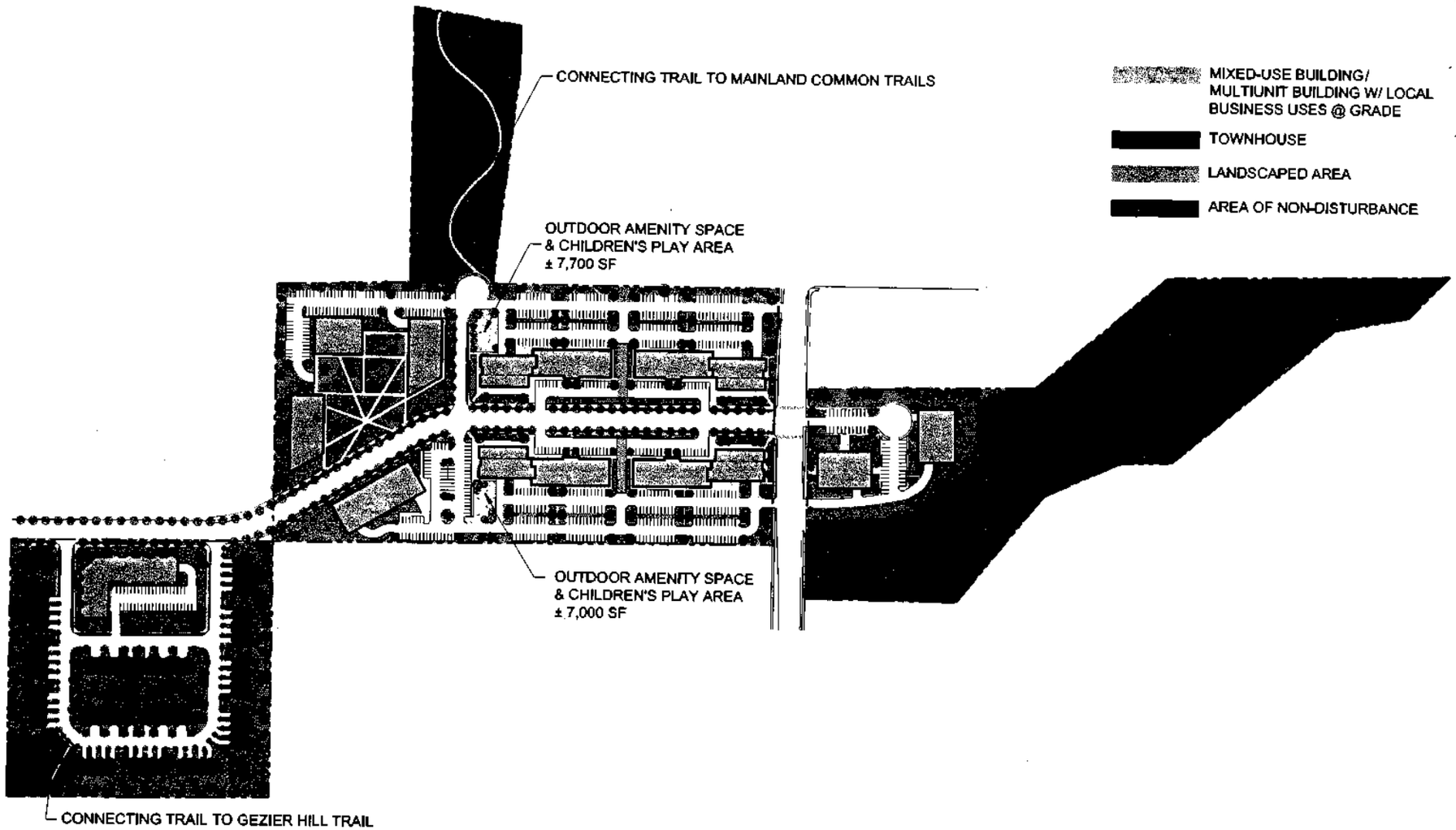
Saving and Excepting Parcel RPD as shown on Registered Plan No 97862081 recorded in the Land Registration Office for Halifax County.

*** Municipal Government Act, Part IX Compliance ***

Compliance:

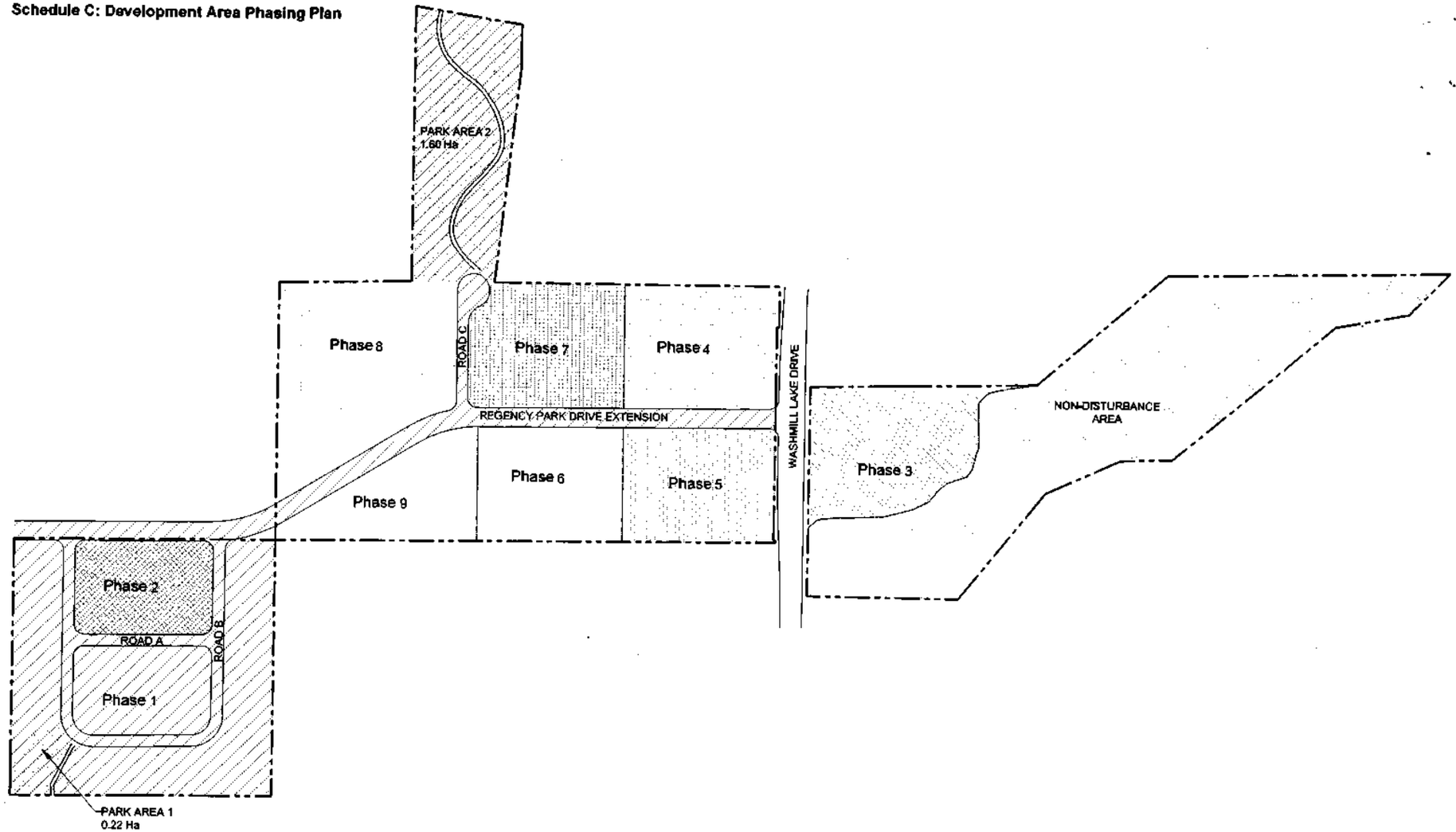
The parcel is created by a subdivision (details below) that has been filed under the Registry Act or registered under the Land Registration Act
Registration District: HALIFAX COUNTY
Registration Year: 2011
Plan or Document Number: 97862081

Schedule B: Master Site Plan and Parkland



MAINLAND COMMON DEVELOPMENT HALIFAX, NS	SCHEDULE B **MASTER SITE PLAN + PARKLAND**	Project No.: P2011.26 Scale: NTS Date: 30 Apr 2018		WM FARES ARCHITECTS	A01

Schedule C: Development Area Phasing Plan



MAINLAND COMMONS PROJECT HALIFAX, NS	SCHEDULE C **DEVELOPMENT AREA PHASING PLAN**	Project No.: P2011.26 Scale: NTS Date: 6 Jul 2017	WM FARES ARCHITECTS **A02**

SCHEDULE D:
Architectural Design Requirements - Townhouses

When considering a Stage II Development Agreement, townhouse developments shall conform to the following design requirements:

(a) Blocks of townhouses shall be designed to ensure variation along the street. The same front facade and elevation, roofline, materials or colours should not be repeated within adjacent blocks of townhouses.

(b) Each block of townhouses shall create the impression of distinct individual units through the use of building wall offsets, varied rooflines, and the use of different colours, materials or windows.

(c) Architectural treatment shall be continued around all facades of the building.

(d) Blank end walls shall be avoided by means such as, but not limited to, the location of windows, or architectural detailing.

(e) Where a publicly-viewed facade includes a peaked roof, detail shall be provided between the top of the windows and the peak of the roof. Such detail could include, but is not limited to shingles, louvers, a window or exposed rafters.

(f) Private exterior space, such as porches, balconies, patios or roof terraces, shall be provided for each individual unit.

(g) Driveways shall be paired where possible. Landscaping shall be provided to break up individual driveways where pairing cannot be achieved.

(h) The front yard setback may be reduced to 3.05 metres (10 feet), where parking areas are located in the rear yard.

(i) Propane tanks and electrical transformers and all other exterior utility boxes shall be located and secured in accordance with the applicable approval agencies. These facilities shall be screened by means of opaque fencing, structural walls or suitable landscaping.

(j) Any exposed foundation in excess of 1 metre (3.3 feet) shall be architecturally detailed, veneered with stone or brick, painted, stucco, or an equivalent.

(k) Projections as such, but not limited to stairs, balconies, and bay windows shall be permitted into the required front yard setback no more than 1.52 metres (5 feet).

<u>Building Materials</u>

Building materials throughout the development should be chosen for their functional and aesthetic quality, and exterior finishes should exhibit quality of workmanship, sustainability and ease of maintenance. When considering a Stage II Development Agreement, the following guidelines shall be considered:

(a) Permitted building cladding shall include, natural stone, brick, manufactured stone (masonry application), split faced concrete block masonry, cement based stucco system, prefinished metal, aluminum shingles, wood shingles, wood siding, glass and the limited use of cement board siding.

(b) The scale of the material should be consistent with the scale of the building.

(c) A minimum of two major exterior cladding materials, excluding fenestration, are required for any publicly-viewed facade. The proportions of each material shall be sensitively designed. The use of two discernible colours or two discernible textures of the same material are acceptable as meeting this requirement.

(d) Materials used for the main facade shall be carried around the building where other facades are viewed from the s`treet.

(e) Any exposed foundation in excess of 0.61 metres (2 feet) in height and 1.86 square metres (20 square feet) in total area shall be architecturally detailed, veneered, or mitigated with suitable landscaping.

SCHEDULE E:
Site & Architectural Design Requirements –
Multiple-Unit Residential and Commercial Buildings

When considering a Stage II Development Agreement, all multiple-unit residential and commercial developments shall conform to the following design requirements:

1. Building Design

1.1 Heights, Facades and Articulation

(a) The maximum height of the buildings shall not exceed the heights identified in Section 3.6.5 of the Stage I Agreement.

(b) The main facade and entrance of buildings within Phases 2, 4, 5, 6, 7 and 9 shall be oriented to Regency Park Drive Extension.

(c) Phase 9 shall consist of a maximum of three buildings, as shown on Schedule B, with frontage on Regency Park Drive extension and Road C.

(d) Street-facing facades shall have the highest design quality; however, all publicly viewed facades shall have a consistent and high-quality design expression.

(e) All buildings shall be articulated into a base and middle through the use of stepbacks, extrusions, textures, materials, detailing and other means.

(f) For all buildings, the streetwall height shall be between 11.0 metres and 16.0 metres.

(g) For all buildings, the base shall be articulated with a minimum streetwall stepback of 2.0 metres above 4 storeys, where no balconies are present. and 3 m where balconies are present.

(h) Long, uninterrupted blank walls are prohibited. Building walls shall be articulated with projections, recesses, changes in material and colour or a combination thereof.

(i) The main façade of a building base should be articulated into distinct vertical and narrow sections, similar to townhouse and retail bay forms with frequent individually accessed units, through the use of projections, recesses, changes in material and colour or a combination thereof.

(j) No mechanical equipment shall be permitted in the front or flankage yard of any building. All mechanical equipment must be screened through landscaping or through an accessory structure.

1.2 Entrances, Doors and Windows

(a) All main entrances to the building shall be emphasized by detailing, changes in materials, and other architectural devices. Such details may include a change in height, roofline or massing, projection of the entrance, or the use of architectural devices such as lintels, columns, porticos, overhangs, corner boards, or fascia boards.

(b) All main entrances to the building shall be covered with a canopy, awning, recess or similar device or approach to provide weather protection for pedestrians.

(c) Service and delivery entrances shall be integrated into the design of the building and shall be located at the rear of the building.

1.3 Roofs

(a) All rooftop mechanical equipment shall be screened from view by integrating it into the architectural design of the building.

(b) Flat roofs or roofs with less than 5-in-12 pitch shall integrate mechanical equipment and include architectural detail along the roof which compliments the building architecture.

(c) Where exposed roof surface areas are large, design elements shall be incorporated to break down perceived proportion, scale and massing of the roof to create human scaled surfaces. Such design elements could include dormers, gables, cross gables, varying planes or other elements.

2. Building Materials

2.1 Building materials throughout the development should be chosen for their functional and aesthetic quality, and exterior finishes should exhibit quality of workmanship, sustainability and ease of maintenance. When considering a Stage II Development Agreement, Council shall have regard for the following:

(a) Permitted building cladding shall include, natural stone, brick, manufactured stone (masonry application), split faced concrete block masonry, prefinished metal, aluminum shingles, wood shingles, wood siding, glass and the limited use of cement board siding.

(b) The scale of the material should be consistent with the scale of the building.

(c) A minimum of two major exterior cladding materials, excluding fenestration, are required for any publicly-viewed facade. The proportions of each material shall be sensitively designed. The use of two discernible colours or two discernible textures of the same material are acceptable as meeting this requirement.

(d) Materials used for the main facade shall be carried around the building where other facades are publicly viewed.

(e) Any exposed foundation in excess of 0.61 metres (2 feet) in height and 1.86 square metres (20 square feet) in total area shall be architecturally detailed, veneered, or mitigated with suitable landscaping.

3. Accessory Buildings

3.1 Accessory buildings for multiple unit buildings, commercial buildings or community facilities shall be designed similar to the principal buildings on the same site.

4. Parking

4.1 Where surface parking is provided for more than 4 vehicles;

(a) Parking lots shall, where possible, be located out of the public view from Regency Park Drive and Washmill Lake Drive;
(b) Parking shall be broken up into moderately sized lots, with a maximum of 40 parking spaces per lot;
(c) Parking lots shall be designed to include internal landscaping or hardscaping on islands at the ends of each parking aisle;
(d) Parking lots shall be designed provide pedestrian connectivity through landscaping and clearly marked pedestrian access and paths, pedestrian-oriented lighting, and be concealed with low maintenance landscaped buffers or other mitigating design measures;
(e) Parking shall be designed according to the principles of CPTED (Community Protection Through Environmental Design); and
(f) Parking spaces shall be at least 2.74 metres (9 feet) x 6.01 metres (20 feet) in size.

5. Service and Storage Areas

5.1 Where service, storage, utility or loading areas are required for multiple unit dwellings, commercial or institutional uses, they shall be screened from the public view and nearby residential uses. If these areas must be in the public view, they shall include high quality materials and features that can include continuous paving treatments, landscaping and well-designed doors and entries.

Attachment C

Phase Costs

Geizer Hill High Service Area

Year	Description	Quantity	Unit Rate	Cost	10.00% Engineering	15.00% Contingency	4.286% Net HST	Total Costs	Escalation Factor	Escalated Costs	3.32% 1.77% Interest	Total CCC	37% Fire Protection	Net Escalated Costs
2012	Water Service District Study (20% of 3-1659) Notes 1 & 2	1	$17,050.28	$17,050.28	$0.00	$0.00	$730.78	$17,781.06	1.0000	$17,781.06	$590.33	$18,371.39	$6,797.41	$11,573.98
2012	Booster Station Design (80% of 3-1659) Notes 1 & 2	1	$68,420.80	$68,420.80	$0.00	$0.00	$2,932.52	$71,353.32	1.0000	$71,353.32	$2,368.93	$73,722.25	$27,277.23	$46,445.02
2014	Booster Station SCADA / Instrumentation System Notes 3 & 4	1	$3,661.10	$3,661.10	$366.11	$0.00	$172.61	$4,199.82	1.0000	$4,199.82	$139.43	$4,339.25	$1,605.52	$2,733.73
2014	Water main oversizing - 300mm to 400mm - Washmill Lake Drive Notes 3, 4 & 5	118.615	$198.75	$23,574.21	$2,357.42	$0.00	$1,111.43	$27,043.07	1.0000	$27,043.07	$897.83	$27,940.90	$10,338.13	$17,602.76
2014	Booster Station - Washmill Lake Drive Notes 4, 5, 6 & 7	1	$1,033,916.94	$1,033,916.94	$41,412.10	$0.00	$46,088.60	$1,121,417.64	1.0000	$1,121,417.64	$37,231.07	$1,158,648.71	$428,700.02	$729,948.68
2014	Water main oversizing - 300mm to 400mm - Block B Note 4	293.572	$190.00	$55,778.68	$5,577.87	$8,366.80	$2,988.34	$72,711.69	1.0000	$72,711.69	$2,419.60	$75,131.30	$27,798.58	$47,332.72
2014	Water main - 400mm - Block B Corner Note 4	43.859	$675.00	$29,604.83	$2,960.48	$4,440.72	$1,586.08	$38,592.11	1.0000	$38,592.11	$1,281.26	$39,873.37	$14,753.15	$25,120.22
2014	**Subtotal**			**$1,232,006.85**	**$52,673.98**	**$12,807.53**	**$55,610.35**	**$1,353,098.71**		**$1,353,098.71**	**$44,928.45**	**$1,398,027.16**	**$517,270.05**	**$880,757.11**
2020	Water main - 400 mm - Halifax Water reservoir site Note 8	198.476	$675.00	$133,971.30	$13,397.13	$20,095.70	$7,177.51	$174,641.64	1.1169	$195,058.38	$3,452.53	$198,510.92	$73,449.04	$125,061.88
2020	**Subtotal**			**$133,971.30**	**$13,397.13**	**$20,095.70**	**$7,177.51**	**$174,641.64**		**$195,058.38**	**$3,452.53**	**$198,510.92**	**$73,449.04**	**$125,061.88**
Grand Total				**$1,365,978.15**	**$66,071.11**	**$32,903.22**	**$62,787.86**	**$1,527,740.34**		**$1,548,157.09**	**$48,380.99**	**$1,596,538.08**	**$590,719.09**	**$1,005,818.99**

Note 1: No Engineering or Contingency required, this was a study and was completed prior to the creation of the CCC

Note 2: An Escilation Factor of 1.046 was applied (ENR of 1.74% compounded annualy) to the base cost to relate the cost of the study in 2014 dollars because the study was completed in 2012.

Note 3: Engineering of 10% to cover the inspection requirements. No contingency was collected because infrastructure had already been installed.

Note 4: Infrastrucure built in 2014.

Note 5: An Escilation Factor of 1.046 was applied (ENR of 1.74% compounded annualy) to the base cost to relate the cost in 2014 dollars because the infrastructure had already been installed.

Note 6: 10% Engineering costs reduced to reflect the inspections that occured, the design of the station was accounted for in a separate line item. No contingency was collected because infrastructre has already been installed.

Note 7: No Contingency required because infrastructure had already been installed.

Note 8: Infrastrucure to be built in 2020.

Attachment D

Financial Model

Geizer Hill High Service Area

Financial Model - 2014 to 2028

Year	Owner	Population	CCC Annual Adj. Factor	Cash In-Density	*COLLECTED* Cumulative Cash In	Total Cost Taxes Incl	*SPENT* Cumulative Cash Out	Cumulative Net Cash	Balance Finance 2.99% / 3.01%	Cumulative Finance	Total Cumulative Cost
2014	CDL (All Parcels)	1416	1.00000	$377,354.24							
2014				$377,354	$ 377,354	$ 880,757	$ 880,757	$ (503,403)	($15,052)	($15,052)	$ (518,455)
2015				$0	$ 377,354		$ 880,757	$ (503,403)	($15,502)	($31,003.59)	$ (534,406)
2016				$0	$ 377,354		$ 880,757	$ (503,403)	($15,979)	($47,909.35)	$ (551,312)
2017				$0	$ 377,354		$ 880,757	$ (503,403)	($16,484)	($65,826.07)	$ (569,229)
2018				$0	$ 377,354		$ 880,757	$ (503,403)	($17,020)	($84,814.22)	$ (588,217)
2019				$0	$ 377,354		$ 880,757	$ (503,403)	($17,705)	($105,072.46)	$ (608,475)
2020	Septra - Phase 1	201	1.10903	$59,405							
2020				$59,405	$ 436,759	$ 125,062	$ 1,005,819	$ (569,060)	($20,291)	($128,526.52)	$ (697,586)
2021	Septra - Phase 2	225	1.12488	$67,449							
2021				$67,449	$ 504,208		$ 1,005,819	$ (501,611)	($18,967)	($151,362.30)	$ (652,973)
2022	Septra - Phase 3	495	1.14097	$150,511							
2022				$150,511	$ 654,719		$ 1,005,819	$ (351,100)	($15,124)	($171,042.43)	$ (522,143)
2023	Septra - Phase 4	261	1.15732	$80,497							
2023				$80,497	$ 735,216		$ 1,005,819	$ (270,603)	($13,294)	($189,484.35)	$ (460,088)
2024	Septra - Phase 5	261	1.17391	$81,651							
2024				$81,651	$ 816,867		$ 1,005,819	$ (188,952)	($11,391)	($206,578.76)	$ (395,531)
2025	Septra - Phase 6	261	1.19076	$82,823							
2025				$82,823	$ 899,690		$ 1,005,819	$ (106,129)	($9,413)	($222,209.28)	$ (328,338)
2026	Septra - Phase 7	261	1.20787	$84,013							
2026				$84,013	$ 983,703		$ 1,005,819	$ (22,116)	($7,354)	($236,251.96)	$ (258,368)
2027	Septra - Phase 8	621	1.22525	$202,769							
2027				$202,769	$ 1,186,472		$ 1,005,819	$ 180,653	($1,674)	($245,036.67)	$ (64,384)
2028	Septra - Phase 9	216	1.24289	$71,544							
2028				$71,544	$ 1,258,016		$ 1,005,819	$ 252,197	$216	($252,196.76)	$ -
Total		4218		$ 1,258,016		$ 1,005,819				Interest Adjustment	$118,249

Attachment E

Assumptions

Geizer Hill High Service Area

Construction period interest for 2014-2018 3.32%

Data Source: Bank of Canada V122504: Bankers' acceptances - 1 month + 0.75% risk premium - 10 year average, updated June 6, 2011

Construction period interest for 2019 onward 1.77%

Data Source: Bank of Canada V122504: Bankers' acceptances - 1 month + 0.75% risk premium - 10 year average, updated April 24, 2019

Balance Financing 2014-2018 2.99%

Data Source: Bank of Canada V122543: Government of Canada benchmark bond yields,10 year + 0.75% risk premium, - 10 year average, updated November 4, 2013

Balance Financing 2019 onward 3.01%

Data Source: Bank of Canada V122543: Government of Canada benchmark bond yields,10 year + 0.75% risk premium, - 10 year average, updated April 24, 2019

Inflation on Infrastructure 2014-2018 1.74%

Data Source: ENR, Statistics Canada - see Inflation tab

Inflation on Infrastructure 2019 onward 2.24%

Data Source: ENR, Statistics Canada - see Inflation tab

Inflation on CCC per person charge 2014-2018 1.90%

Inflation on CCC per person charge 2019 onward 1.54%

Attachment F

CCC Charge Summary

Geizer Hill High Service Area

Total Cost of Oversized Water Infrastructure	**(A)**	$1,548,157.09	
Interest During Construction (3.32%)	**(A) * 3.32% = (B)**	$48,380.99	
Total Cost of Oversized Water Infrastructure Installed	**(A) + (B) = (C)**	$1,596,538.08	
Deduct Portion Paid by HRM for Fire Protection (37 % of C)	**(C) * 37% = (D)**	$590,719.09	
Balance to be recovered from Halifax Water and New Customers	**(C) - (D) = (E)**	$1,005,818.99	
Deduct Portion of Infrastructure that benefits Halifax Water (Existing Customers)	**(F)**	$0.00	**Note 1**
Net Escalated Cost to be recovered from New Customers (Developers)	**(E) - (F) = (G)**	$1,005,818.99	
Interest/Inflation Adjustment	**Inflation Adjustment = (G')**	$118,248.93	**Note 2**
Net Cost to New Customers (Developers)	**(G) + (G') = (H)**	$1,124,067.92	
Population for Development	**(I)**	4,218	people
Development Charge Per Person	**(H)/(I)=(J)**	**$266.49**	**per person**

Note 1: No benefit to existing Halifax Water Customers
Note 2: Interest Adjustment, in the absence of inflation factors applied to the CCC charge, equals the amount of financing charges.
The presence of an inflationary adjustment for the charge changes this amount so that the per person charge in year 1 can be calculated.
Inflation factors are applied annually to the base charge.

Year	Description		Receivables	Disbursements	Cumalitive
2014	Study (20% of 3-1659)	3-1659		($18,371.39)	($18,371.39)
2014	Design of Booster (80% of 3-1659)	3-1659		($73,722.25)	($92,093.64)
2014	37% Fire Protection Study	3-1659	$6,797.41		($85,296.22)
2014	37% Fire Protection Design of Booster	3-1659	$27,277.23		($58,018.99)
2014	SCADA / Instrumentation System (provided by HRWC)	3-1659		($4,339.25)	($62,358.25)
2014	37% Fire Protection SCADA	3-1659	$1,605.52		($60,752.72)
2014	Clayton Developments Limited - CCC Payment		$485,564.00		$424,811.28
2014	Transmission Main Booster to Block B	3-1500		($27,940.89)	$396,870.39
2014	37% Fire Protection Transmission Main Booster to Block B	3-1500	$10,338.13		$407,208.52
2014	Geizer Hill Booster Station	3-1659		($1,158,648.71)	($751,440.19)
2014	37% Fire Protection Geizer Hill Booster Station	3-1659	$428,700.02		($322,740.17)
2014	Block B corner 300 to 400 (CDL)	3-1801		($75,131.30)	($397,871.46)
2014	Block B corner 400 (CDL)	3-1801		($39,873.37)	($437,744.83)
2014	37% Fire Protection Block B corner 300 to 400 (CDL)	3-1801	$27,798.58		($409,946.25)
2014	37% Fire Protection Block B corner 400 (CDL)	3-1801	$14,753.15		($395,193.10)
			$1,002,834.05	($1,398,027.15)	

Attachment C

Phase Costs

Geizer Hill High Service Area

Year	Description	Quantity	Unit Rate	Cost	10.00% Engineering	15.00% Contingency	4.286% Net HST	Total Costs	Escalation Factor	Escalated Costs	3.32% 1.77% Interest	Total CCC	37% Fire Protection	Net Escalated Costs
2012	Water Service District Study (20% of 3-1659) Notes 1 & 2	1	$17,050.28	$17,050.28	$0.00	$0.00	$730.78	$17,781.06	1.0000	$17,781.06	$590.33	$18,371.39	$6,797.41	$11,573.98
2012	Booster Station Design (80% of 3-1659) Notes 1 & 2	1	$68,420.80	$68,420.80	$0.00	$0.00	$2,932.52	$71,353.32	1.0000	$71,353.32	$2,368.93	$73,722.25	$27,277.23	$46,445.02
2014	Booster Station SCADA / Instrumentation System Notes 3 & 4	1	$3,661.10	$3,661.10	$366.11	$0.00	$172.61	$4,199.82	1.0000	$4,199.82	$139.43	$4,339.25	$1,605.52	$2,733.73
2014	Water main oversizing - 300mm to 400mm - Washmill Lake Drive Notes 3, 4 & 5	118.615	$198.75	$23,574.21	$2,357.42	$0.00	$1,111.43	$27,043.07	1.0000	$27,043.07	$897.83	$27,940.90	$10,338.13	$17,602.76
2014	Booster Station - Washmill Lake Drive Notes 4, 5, 6 & 7	1	$1,033,916.94	$1,033,916.94	$41,412.10	$0.00	$46,088.60	$1,121,417.64	1.0000	$1,121,417.64	$37,231.07	$1,158,648.71	$428,700.02	$729,948.68
2014	Water main oversizing - 300mm to 400mm - Block B Note 4	293.572	$190.00	$55,778.68	$5,577.87	$8,366.80	$2,988.34	$72,711.69	1.0000	$72,711.69	$2,419.60	$75,131.30	$27,798.58	$47,332.72
2014	Water main - 400mm - Block B Corner Note 4	43.859	$675.00	$29,604.83	$2,960.48	$4,440.72	$1,586.08	$38,592.11	1.0000	$38,592.11	$1,281.26	$39,873.37	$14,753.15	$25,120.22
2014	**Subtotal**			**$1,232,006.85**	**$52,673.98**	**$12,807.53**	**$55,610.35**	**$1,353,098.71**		**$1,353,098.71**	**$44,928.45**	**$1,398,027.16**	**$517,270.05**	**$880,757.11**
2020	Water main - 400 mm - Halifax Water reservoir site Note 8	198.476	$675.00	$133,971.30	$13,397.13	$20,095.70	$7,177.51	$174,641.64	1.1169	$195,058.38	$3,452.53	$198,510.92	$73,449.04	$125,061.88
2020	**Subtotal**			**$133,971.30**	**$13,397.13**	**$20,095.70**	**$7,177.51**	**$174,641.64**		**$195,058.38**	**$3,452.53**	**$198,510.92**	**$73,449.04**	**$125,061.88**
Grand Total				**$1,365,978.15**	**$66,071.11**	**$32,903.22**	**$62,787.86**	**$1,527,740.34**		**$1,548,157.09**	**$48,380.99**	**$1,596,538.08**	**$590,719.09**	**$1,005,818.99**

Note 1: No Engineering or Contingency required, this was a study and was completed prior to the creation of the CCC

Note 2: An Escilation Factor of 1.046 was applied (ENR of 1.74% compounded annualy) to the base cost to relate the cost of the study in 2014 dollars because the study was completed in 2012.

Note 3: Engineering of 10% to cover the inspection requirements. No contingency was collected because infrastructure had already been installed.

Note 4: Infrastrucure built in 2014.

Note 5: An Escilation Factor of 1.046 was applied (ENR of 1.74% compounded annualy) to the base cost to relate the cost in 2014 dollars because the infrastructure had already been installed.

Note 6: 10% Engineering costs reduced to reflect the inspections that occured, the design of the station was accounted for in a separate line item. No contingency was collected because infrastructre has already been installed.

Note 7: No Contingency required because infrastructure had already been installed.

Note 8: Infrastrucure to be built in 2020.

Attachment D

Financial Model

Geizer Hill High Service Area

Financial Model - 2014 to 2028

Year	Owner	Population	CCC Annual Adj. Factor	Cash In-Density	*COLLECTED* Cumulative Cash In	Total Cost Taxes Incl	*SPENT* Cumulative Cash Out	Cumulative Net Cash	Balance Finance 2.99% / 3.01%	Cumulative Finance	Total Cumulative Cost
2014	CDL (All Parcels)	1416	1.00000	$377,354.24							
2014				$377,354	$ 377,354	$ 880,757	$ 880,757	$ (503,403)	($15,052)	($15,052)	$ (518,455)
2015				$0	$ 377,354		$ 880,757	$ (503,403)	($15,502)	($31,003.59)	$ (534,406)
2016				$0	$ 377,354		$ 880,757	$ (503,403)	($15,979)	($47,909.35)	$ (551,312)
2017				$0	$ 377,354		$ 880,757	$ (503,403)	($16,484)	($65,826.07)	$ (569,229)
2018				$0	$ 377,354		$ 880,757	$ (503,403)	($17,020)	($84,814.22)	$ (588,217)
2019				$0	$ 377,354		$ 880,757	$ (503,403)	($17,705)	($105,072.46)	$ (608,475)
2020	Septra - Phase 1	201	1.10903	$59,405							
2020				$59,405	$ 436,759	$ 125,062	$ 1,005,819	$ (569,060)	($20,291)	($128,526.52)	$ (697,586)
2021	Septra - Phase 2	225	1.12488	$67,449							
2021				$67,449	$ 504,208		$ 1,005,819	$ (501,611)	($18,967)	($151,362.30)	$ (652,973)
2022	Septra - Phase 3	495	1.14097	$150,511							
2022				$150,511	$ 654,719		$ 1,005,819	$ (351,100)	($15,124)	($171,042.43)	$ (522,143)
2023	Septra - Phase 4	261	1.15732	$80,497							
2023				$80,497	$ 735,216		$ 1,005,819	$ (270,603)	($13,294)	($189,484.35)	$ (460,088)
2024	Septra - Phase 5	261	1.17391	$81,651							
2024				$81,651	$ 816,867		$ 1,005,819	$ (188,952)	($11,391)	($206,578.76)	$ (395,531)
2025	Septra - Phase 6	261	1.19076	$82,823							
2025				$82,823	$ 899,690		$ 1,005,819	$ (106,129)	($9,413)	($222,209.28)	$ (328,338)
2026	Septra - Phase 7	261	1.20787	$84,013							
2026				$84,013	$ 983,703		$ 1,005,819	$ (22,116)	($7,354)	($236,251.96)	$ (258,368)
2027	Septra - Phase 8	621	1.22525	$202,769							
2027				$202,769	$ 1,186,472		$ 1,005,819	$ 180,653	($1,674)	($245,036.67)	$ (64,384)
2028	Septra - Phase 9	216	1.24289	$71,544							
2028				$71,544	$ 1,258,016		$ 1,005,819	$ 252,197	$216	($252,196.76)	$ -
Total		4218		$ 1,258,016		$ 1,005,819				Interest Adjustment	$118,249

Attachment E

Assumptions

Geizer Hill High Service Area

Construction period interest for 2014-2018 3.32%

Data Source: Bank of Canada V122504: Bankers' acceptances - 1 month + 0.75% risk premium - 10 year average, updated June 6, 2011

Construction period interest for 2019 onward 1.77%

Data Source: Bank of Canada V122504: Bankers' acceptances - 1 month + 0.75% risk premium - 10 year average, updated April 24, 2019

Balance Financing 2014-2018 2.99%

Data Source: Bank of Canada V122543: Government of Canada benchmark bond yields,10 year + 0.75% risk premium, - 10 year average, updated November 4, 2013

Balance Financing 2019 onward 3.01%

Data Source: Bank of Canada V122543: Government of Canada benchmark bond yields,10 year + 0.75% risk premium, - 10 year average, updated April 24, 2019

Inflation on Infrastructure 2014-2018 1.74%

Data Source: ENR, Statistics Canada - see Inflation tab

Inflation on Infrastructure 2019 onward 2.24%

Data Source: ENR, Statistics Canada - see Inflation tab

Inflation on CCC per person charge 2014-2018 1.90%

Inflation on CCC per person charge 2019 onward 1.54%

Attachment F

CCC Charge Summary

Geizer Hill High Service Area

Total Cost of Oversized Water Infrastructure	**(A)**	$1,548,157.09	
Interest During Construction (3.32%)	**(A) * 3.32% = (B)**	$48,380.99	
Total Cost of Oversized Water Infrastructure Installed	**(A) + (B) = (C)**	$1,596,538.08	
Deduct Portion Paid by HRM for Fire Protection (37 % of C)	**(C) * 37% = (D)**	$590,719.09	
Balance to be recovered from Halifax Water and New Customers	**(C) - (D) = (E)**	$1,005,818.99	
Deduct Portion of Infrastructure that benefits Halifax Water (Existing Customers)	**(F)**	$0.00	**Note 1**
Net Escalated Cost to be recovered from New Customers (Developers)	**(E) - (F) = (G)**	$1,005,818.99	
Interest/Inflation Adjustment	**Inflation Adjustment = (G')**	$118,248.93	**Note 2**
Net Cost to New Customers (Developers)	**(G) + (G') = (H)**	$1,124,067.92	
Population for Development	**(I)**	4,218	people
Development Charge Per Person	**(H)/(I)=(J)**	**$266.49**	**per person**

Note 1: No benefit to existing Halifax Water Customers

Note 2: Interest Adjustment, in the absence of inflation factors applied to the CCC charge, equals the amount of financing charges. The presence of an inflationary adjustment for the charge changes this amount so that the per person charge in year 1 can be calculated. Inflation factors are applied annually to the base charge.

Parcel ID	Developer	Phase	Development Type Area (acre)	Unit Count		Commercial (ft^2)	Density (ppa)	Population (people)	Percent of CCC area	Collection Year
				3.4	2.25					
41342403	CDL (Block B)[1]		52.138				27.2	1416	33.6%	2012
41342395	CDL (Block C)[1]									
41331174	CDL (Block D)[1]									
41331166	CDL (WLD-1)[1]									
41177387	CDL (HW-1)[1]									
00330845	Septra (CHUM)[2]	Phase 1	5.000	60			40.2	201	4.8%	2020
00330845	Septra (CHUM)[2]	Phase 2	5.000		100		45.0	225	5.3%	2021
41177403	Septra (Former Halifax Water)[2]	Phase 3	13.344		220		37.1	495	11.7%	2022
40550774	Septra (Golf Course Lands)[2]	Phase 4	3.917		116		66.6	261	6.2%	2023
40550774	Septra (Golf Course Lands)[2]	Phase 5	3.917		116		66.6	261	6.2%	2024
40550774	Septra (Golf Course Lands)[2]	Phase 6	3.917		116		66.6	261	6.2%	2025
40550774	Septra (Golf Course Lands)[2]	Phase 7	3.917		116		66.6	261	6.2%	2026
40550774	Septra (Golf Course Lands)[2]	Phase 8	3.917		276		158.6	621	14.7%	2027
40550774	Septra (Golf Course Lands)[2]	Phase 9	3.917		96		55.1	216	5.1%	2028
		Total	**99.0**	**60**	**1156**			**4218**	**100.0%**	

Escalation Factors

	1.744%	**1.896%**
ENR inflation Compounded Annually	**2.240%**	**1.538%**

Infrastructure

Year	Factor
2008	1.0000
2009	1.0000
2010	1.0000
2011	1.0000
2012	1.0000
2013	1.0000
2014	1.0000
2015	1.0174
2016	1.0352
2017	1.0532
2018	1.0716
2019	1.0940
2020	1.1169
2021	1.1403
2022	1.1643
2023	1.1888
2024	1.2138
2025	1.2394
2026	1.2655
2027	1.2923
2028	1.3196
2029	1.3476
2030	1.3762
2031	1.4054
2032	1.4353

CCC Acreage Rate

Year	Factor
2008	1.0000
2009	1.0000
2010	1.0000
2011	1.0000
2012	1.0000
2013	1.0000
2014	1.0000
2015	1.0190
2016	1.0383
2017	1.0580
2018	1.0780
2019	1.0934
2020	1.1090
2021	1.1249
2022	1.1410
2023	1.1573
2024	1.1739
2025	1.1908
2026	1.2079
2027	1.2252
2028	1.2429
2029	1.2608
2030	1.2790
2031	1.2974
2032	1.3162

1.00000
1.02990
1.06069
1.09241
1.12507
1.15871
1.19336

https://www150.statcan.gc.ca/n1/pub/62-001-x/2018004/tbl/tbl-12-eng.htm

Stats Can CPI (Table 12 - Halifax)		
Year	Annual Average Index	Percentage change
1980	45.2	
1981	50.6	11.947%
1982	55.4	9.486%
1983	59	6.498%
1984	61.6	4.407%
1985	64.4	4.545%
1986	66.6	3.416%
1987	68.9	3.453%
1988	71.5	3.774%
1989	74.9	4.755%
1990	78.7	5.073%
1991	83.3	5.845%
1992	84	0.840%
1993	84.8	0.952%
1994	85.7	1.061%
1995	86.8	1.284%
1996	88.3	1.728%
1997	90	1.925%
1998	90.7	0.778%
1999	92.2	1.654%
2000	95.1	3.145%
2001	97	1.998%
2002	100	3.093%
2003	103.2	3.200%
2004	105	1.744%
2005	107.6	2.476%
2006	109.8	2.045%
2007	112	2.004%
2008	115.2	2.857%
2009	115.3	0.087%
2010	117.6	1.995%
2011	121.7	3.486%
2012	123.8	1.726%
2013	125.2	1.131%
2014	127.5	1.837%
2015	128.2	0.549%
2016	129.8	1.248%
2017	131.2	1.079%

Twenty year average	1.907%
Five year average	1.169%
Average of 5 and 20	1.538%
Average 2012-2017	1.262%

Français

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The Consumer Price Index

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Table 12

The All-items Consumer Price Index by city, [1] not seasonally adjusted, historical data

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual average [2]
	2002=100												
St. John's, Newfoundland and													
Halifax, Nova Scotia (v41692858)													
2009	113.1	113.9	114.1	114.7	115.3	116.0	116.1	116.2	116.3	115.4	116.5	115.8	115.3
2010	116.3	116.3	117.0	117.3	117.1	116.7	118.0	118.1	118.3	118.6	118.9	118.6	117.6
2011	119.5	120.0	121.3	121.9	122.1	121.5	121.8	122.2	122.8	122.9	122.9	121.6	121.7
2012	122.4	123.0	124.0	124.8	124.2	123.5	123.3	123.8	124.5	124.4	124.3	123.7	123.8
2013	124.1	125.2	125.3	125.4	125.1	125.0	125.1	125.2	126.0	125.4	125.5	125.4	125.2
2014	126.0	127.0	127.6	127.7	128.2	127.7	127.5	127.7	128.2	128.2	127.4	126.2	127.5

Halifax, Nova Scotia (v41692858)													
2013	124.1	125.2	125.3	125.4	125.1	125.0	125.1	125.2	126.0	125.4	125.5	125.4	125.2
2014	126.0	127.0	127.6	127.7	128.2	127.7	127.5	127.7	128.2	128.2	127.4	126.2	127.5
2015	125.8	126.9	128.4	128.3	128.9	128.9	128.9	128.8	128.4	128.8	128.1	127.7	128.2
2016	128.2	128.4	129.0	129.9	130.5	130.6	130.1	130.1	130.6	130.5	129.8	129.5	129.8
2017	130.5	130.3	130.7	130.9	131.1	131.2	131.3	131.4	132.2	131.6	132.0	131.5	131.2
2018	132.2	133.1	133.8	134.4	..	..	..	..	..	..	..	..	..
Saint John, New Brunswick													

Stats Can Non-Res Construction

Year	Canada Index value as at Q4	Halifax Index value as at Q4	Canada Percentage change	Halifax Percentage change
Q4 1995	83.8	95.2		
Q4 1996	85.4	95.6	1.9%	0.4%
Q4 1997	87.3	92.8	2.2%	-2.9%
Q4 1998	89.0	94.5	1.9%	1.8%
Q4 1999	90.9	95.9	2.1%	1.5%
Q4 2000	97.3	98.3	7.0%	2.5%
Q4 2001	98.5	98.6	1.2%	0.3%
Q4 2002	100.9	101.0	2.4%	2.4%
Q4 2003	103.9	103.9	3.0%	2.9%
Q4 2004	112.8	110.8	8.6%	6.6%
Q4 2005	118.5	115.4	5.1%	4.2%
Q4 2006	129.5	121.1	9.3%	4.9%
Q4 2007	140.0	127.7	8.1%	5.5%
Q4 2008	151.5	136.3	8.2%	6.7%
Q4 2009	140.0	135.7	-7.6%	-0.4%
Q4 2010	142.4	137.9	1.7%	1.6%
Q4 2011	148.3	141.7	4.1%	2.8%
Q4 2012	151.4	144.6	2.1%	2.0%
Q4 2013	152.5	145.8	0.7%	0.8%
Q4 2014	154.7	148.7	1.4%	2.0%
Q4 2015	155.8	151.1	0.7%	1.6%
Q4 2016	158.3	151.6	1.6%	0.3%
Q4 2017	163.2	156.1	3.1%	3.0%

	Canada	Halifax	Combined
Twenty year average	3.25%	2.65%	2.95%
Five year average	1.52%	1.55%	1.53%
Average of 5 and 20	2.38%	2.10%	2.24%
Average 2012-2017	1.61%	1.63%	1.62%

Note
- StatsCan publishes data quarterly
- Used averages of the 4th quarter indexes

- ENR no longer publishes construction inflation rates for Toronto & Montreal, as previously utilized

https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1810004901&timeframe

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Home ➔ Data ➔ Non-residential building construction price index, by class of structure, quarterly ➔ Add/Remove data

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Add/Remove data

Archived - Non-residential building construction price index, by class of structure, quarterly

Frequency: Quarterly

Table: 18-10-0049-01 (formerly CANSIM 327-0043)

Geography: Census metropolitan area, Census metropolitan area part

Replaced by:

- Building construction price indexes, by type of building

Customize table (Add/Remove data)

Geography | Class of structure | Reference period | Customize Layout

1 of 8 items selected

All

Seven census metropolitan area composite

All

Halifax, Nova Scotia [205]

Montréal, Quebec [462]

Ottawa-Gatineau, Ontario part, Ontario/Quebec [35505]

Toronto, Ontario [535]

Calgary, Alberta [825]

Edmonton, Alberta [835]

Vancouver, British Columbia [933]

Filter

Apply

Download options

Class of structure	Reference period	Seven census metropolitan area composite	Halifax, Nova Scotia [2] (map)
		Index, 2002=100	
	Q4 1995	83.8	95.2
	Q1 1996	84.2	95.5
	Q2 1996	84.7	95.4
	Q3 1996	85.1	95.5
	Q4 1996	85.4	95.6
	Q1 1997	85.8	96.0
	Q2 1997	86.6	92.2
	Q3 1997	87.1	92.6
	Q4 1997	87.3	92.8
	Q1 1998	88.0	93.4
	Q2 1998	88.3	93.7
	Q3 1998	88.6	93.9
	Q4 1998	89.0	94.5
	Q1 1999	89.1	95.0
	Q2 1999	89.9	95.4
	Q3 1999	90.4	95.7
	Q4 1999	90.9	95.9
	Q1 2000	92.1	96.9
	Q2 2000	94.9	97.8
	Q3 2000	96.1	98.2
	Q4 2000	97.3	98.3
	Q1 2001	97.4	98.0
	Q2 2001	98.3	98.3
	Q4 2011	148.3	141.7
	Q1 2012	149.8	142.6
	Q2 2012	150.7	143.4
	Q3 2012	151.0	144.4
	Q4 2012	151.4	144.6
	Q1 2013	151.4	144.8
	Q2 2013	152.1	145.6
	Q3 2013	152.3	145.7
	Q4 2013	152.5	145.8
	Q1 2014	153.3	146.6
	Q2 2014	154.2	148.4
	Q3 2014	154.5	148.7
	Q4 2014	154.7	148.7
	Q1 2015	155.2	149.2
	Q2 2015	155.9	150.2
	Q3 2015	155.3	150.6
	Q4 2015	155.8	151.1
	Q1 2016	156.0	150.8
	Q2 2016	158.7	151.6
	Q3 2016	157.3	151.6
	Q4 2016	158.3	151.6
	Q1 2017	159.7	152.4
	Q2 2017	160.9	153.5
	Q3 2017	161.9	154.9
	Q4 2017	163.2	156.1

How to cite: Statistics Canada. Table 18-10-0049-01 Non-residential building construction price index, by class of structure, quarterly

Updated December 2013 - Cathie O'Toole
Inflation Indices

Year	Construction Price Indices ENR	Non-Res. Const. Halifax	2 Index Average	CPI Halifax
1993	3,389	95.48		84.80
1994	3,588	97.75		85.70
1995	3,636	100.68		86.80
1996	3,858	101.93		88.30
1997	3,830	99.98		90.00
1998	3,676	100.4		90.70
1999	3,971	102.43		92.20
2000	3,886	104.98		95.10
2001	4,000	106.03		97.00
2002	4,056	107.45		100.00
2003	4,196	110.23		103.20
2004	4,450	117.95		105.00
2005	4,605	123.3		107.60
2006	4,695	130.15		109.80
2007	4,791	137.05		112.00
2008	5,017	150.80		115.20
2009	4,972	142.00		115.30
2010	4,995	141.40		117.60
2011	5,323	146.60		121.70
2012	5,328	150.70		123.80
20 year Average	2.86%	2.89%	2.88%	2.30%
Average-last 5 yrs	1.24%	-0.01%	0.61%	1.49%
Inflation Estimate for Geizer			**1.74%**	**1.90%**

ENR is blended BCI for Toronto and Montreal

Halifax Water
Halifax Regional Water Commission

ITEM # 8
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D, General Manager

DATE: September 18, 2019

SUBJECT: **Cost Recovery of Manual Meter Reads**

ORIGIN

M07473 Halifax Regional Water Commission - Capital Expenditure Request Associated with the Installation of Automated Meter Infrastructure (AMI) and Approval of Amendments to the Regulations to Support the AMI Project -W-HRWC-E-16

RECOMMENDATION

It is recommended the Halifax Water Board approve a request to the Nova Scotia Utility and Review Board to amend Regulation 45A (2) as shown below, to delete the word "new" and apply the manual read fee to both existing and new customers that chose to have a non-AMI meter.

45A (2) Where AMI is the standard meter in use, and a Customer at an existing or new location refuses to permit the installation or continued use of an existing AMI meter and, as a result of such refusal, the Commission installs a manually read meter, such Customer will be subject to a charge of $50.00 for the measurement of Service by a meter which is required to be read manually and such meter will be read on a quarterly basis.

BACKGROUND

Under the HRWC Regulations, all water service must be metered, and where AMI becomes available Halifax Water may require a customer to have an AMI meter installed for the metering of the service. Refusal to permit access to the meter to conduct the upgrade may result in disconnection of service.

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

45 (1) states all water service shall be metered except as otherwise provided in these Regulations.

45A(2) establishes a manual read fee of $50 per read for a new Customer at an existing or new location who refuses to permit the installation or continued use of an existing AMI meter.

DISCUSSION

There is no manual read fee for existing customers who have a non-AMI meter at this time, however when the manual read fee was initially established the NSUARB indicated Halifax Water could apply to have the manual meter read fee expanded to apply to all customers choosing a manual read, as part of the next general rate application. (Attachment 1 – page 4)

Applying the manual read fee to existing customers selecting manual reads was not approved as these customers were already being read manually, so there was no incremental cost.

This application is being brought forward at this time, rather than in conjunction with the next Rate Application, for three reasons.

1. AMI meter installations will be substantially complete by the end of November. As of September 16th completed installments are 75,561. Halifax Water is going to incur incremental costs for existing customers compared to current revenue requirements and the AMI business case basis due to manual meter reads for existing customers within the AMI program boundaries. Halifax Water will have to retain additional term employees to conduct meter reads and incur vehicle and equipment costs that would otherwise have been eliminated had the customers accepted the AMI meter.

2. There are approximately 2,100 customers that have not responded to Halifax Water or the Customer Connect project's request to arrange an appointment to change out the meter after four rounds of communication; or and a number of customers going through the communication process who are still undecided whether to accept the AMI meter. If Halifax Water were able to convey with certainty when the manual meter read fee would apply to existing customers, it would help bring closure to these remaining customer accounts.

3. To achieve the full benefits of the AMI investment, it is necessary to get broad adoption, typically in the 98% range. Most utilities either use denial of service or a manual read fee to enforce compliance.

The basis for the current manual read fee is explained in Attachment 1, which is the response to an Information Request from the NSUARB filed on October 12, 2016 as part of Hearing M07473. Many other jurisdictions use manual read fees to recover costs and ensure that customers that

accept the AMI meters are not paying incremental costs associated with providing the manual meter reading service for the customers that reject the AMI meter.

Halifax Water is seeking approval to submit an application to the NSUARB to implement the manual read fee for all customers requiring a manual read effective January 1, 2020. Implementation of the fee may result in some undecided customers choosing to accept the AMI meter.

When Halifax Water makes the next General Rate Application later in 2020, Halifax Water will have final numbers on the number of manual reads required and the updated cost of providing the reads. It is anticipated that the manual read fee will be adjusted at that time. The current manual read fee was based on labour and vehicle rates in effect in 2016; and the estimated number of manual reads. In the General Rate Application the labour, vehicle rates, and actual number of manual reads will be adjusted accordingly.

ATTACHMENTS

Attachment 1 - M07473 Decision

Attachment 2 – NSUARB IR-9 from M07473

Report prepared by:

Original Signed By:

Shiju Mathew, GISP , BSc, MBA, Dip. Cartography
Manager of Metering & Billing, 902-490-4995

Nova Scotia Utility and Review Board

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October 6, 2016

jamess@halifaxwater.ca

James Spurr
Corporate Legal Counsel
Halifax Regional Water Commission
450 Cowie Hill Road
P.O. Box 8388, Station A
Halifax, NS B3K 5M1

Dear Mr. Spurr:

M07473- Halifax Regional Water Commission – Capital Expenditure Request Associated with the Installation of Automated Meter Infrastructure (AMI) and Approval of Amendments to the Regulations to Support the AMI Project -W-HRWC-E-16

Introduction

This is in response to HRWC's application to the Board dated May 12, 2016, in which Board approval is requested for: the capital project to install Automated Meter Infrastructure (AMI) in the amount of $25.4 million over the fiscal years of 2016/17, 2017/18, 2018/19 and 2019/20; and for amendments to the Regulations Respecting Rates and Charges for the provision of water, public and private fire protection, and wastewater services ("*Regulations*") to support the AMI project. The application contained a number of appendices, including the Reports: "AMI Technology Assessment and Feasibility Report", dated January 2014, prepared by Excergy ("Excergy Report"); and "Billing Frequency Review", dated March 2015, prepared by G.A. Isenor Consulting in consultation with Blaine S. Rooney Consulting ("Isenor Report").

An Order establishing the timetable for this proceeding was issued on May 25, 2016. Board staff requested information requests ("IRs") on June 15, 2016, to which responses were received on July 6, 2016. One letter of comment, from the Canadian Union of Public Employees ("CUPE"), was received on July 20, 2016.

The Board issued a letter to HRWC dated August 10, 2016, referring to statements made in the application by HRWC's consultants which questioned the cost/benefit justification of implementing AMI technology, as noted in the CUPE letter. It further noted that while the responses to both the IRs and to CUPE were provided, there continued to be concerns that it appeared HRWC's consultants, in the Isenor Report, did not support the use of AMI technology.

The Consumer Advocate ("CA"), the only intervenor in the proceeding, did not file evidence but provided a letter to the Board dated August 25, 2016, which outlined his concerns with the justification of the AMI capital request.

HRWC provided its comments in response to the Board's concerns in a letter dated August 25, 2016. It addressed the CA's concerns in a letter to the Board dated August 31, 2016.

Review

HRWC stated that it decided to explore AMI because: it is the best practice for utilities; it was projecting a significant investment in meter replacement; it was considering monthly billing; and it was being asked in rate applications to provide information related to consumption by various meter classes, which is not possible with its existing meter reading technology.

AMI enables meters to be read remotely from a central location using radio enabled meter interface units. HRWC argued that the volume of data produced by AMI meters provides opportunities for customers to better manage their water usage, for the utility to provide a higher level of customer service, as well as operational efficiencies. The Excergy Report identifies enhanced customer service opportunities:

> The AMI Feasibility Study (the Study) identified four key customer service processes that would be significantly impacted by AMI:
>
> 1. On-cycle billing, including capturing meter readings, reviewing them to ensure accuracy, re-reading meters if necessary, and billing customers. AMI removes the need to physically visit the meter and manually input the reading.
>
> 2. High bill complaints from customers about bills thought to be excessive or inaccurate. This process can be impacted by AMI through better and more detailed data to address customer's questions, to identify potential high usage, and contact the customer before (s)he gets a high bill.
>
> 3. Move-In/Move-Out, the process that captures final meter reads and starting reads for new accounts tied to a customer's premises. With AMI, such reads can be captured exactly when needed without a field visit. In addition, the system can monitor the meter on a daily basis for unauthorized usage.
>
> 4. Collections, including collecting past due bills and processing shut-offs due to non-payment. AMI enables proactive notification before excessive usage presents a financial burden to the customer. AMI also enables the utility to monitor unauthorized usage on accounts that have been disconnected for non-payment.

The Report summarized the annual reduction in annual in-person hours attributable to AMI for processing these activities.

HRWC currently uses the three different technologies of walked route-manual entry, walked route-probe read, and Automated Meter Reading ("AMR") to read meters, with the split roughly equal among the three. HRWC's current billing practice is that meters up to 2" (50 mm) are read four times a year, while meters larger than 2" are read and billed monthly using AMR technology. It is proposed that once AMI is in place, HRWC will bill all customers on a monthly basis.

The application provided a breakdown of the estimated project cost of $25.4 million. The responses to IRs indicated that the net annual operating savings with an AMI system is estimated

at $1,064,223, based upon revenue recovery of $1,192,118, reduced costs of $603,834 and new incremental costs of $731,729. The IR responses provided further information on the business case for AMI which, based upon the assumptions used, indicated a NPV of $7,305, a payback period of 6.3 years and an internal rate of return of 10.3%.

AMI versus AMR and the cost justification supporting the decision to install AMI were the main issues of concern expressed by both CUPE and the CA.

In the end, HRWC rationalized the concerns in the Isenor Report as being based on outdated information.

HRWC addressed CUPE's concerns in a letter to the Board dated August 3, 2016, noting that while the capital cost of AMR is less than AMI and that, in some cases, AMR can provide some features of AMI, these benefits are often limited and available only under certain conditions. It further provided a Table – Benefit Comparison – AMI vs AMR which lists 18 benefits which can be achieved by AMI, of which only three can be achieved by AMR and six partially achieved by AMR.

HRWC's letter to the Board dated August 25, 2016, noted that the amount of $6,457,000 referenced in the Isenor Report as the capital cost difference between AMR and AMI, was based upon the 2014 Excergy Report, which did not reflect that some of the older AMR units in place would have to be replaced. When this is considered, the capital cost difference between AMR and AMI is $4,338,787 which HRWC noted is offset by savings in operational costs over the technology's lifecycle. The letter attached documentation from Excergy, stating that it strongly supported an AMI based system as being in the best interest of both HRWC and its customers.

HRWC addressed the CA's concerns in separate correspondence to the Board dated August 31, 2016. It noted that it does not agree with the CA's statement that the project cost is understated, and again referenced the net annual operating savings of $1,064,223 associated with the AMI system. It further defended its figure of $17.25 million in offsets associated with AMR replacement expenditures, noting that it would be incorrect to assume that it would not have any meter replacement/new install costs over the next 15 years.

HRWC's five year business plan (2016/17 to 2020/21), which was prepared in late 2014, included total capital cost of $24.85 million associated with the AMI project. While the total capital cost is close in magnitude to the requested amount, the cash flow timing differs. The 2016/17 capital budget, which was approved in principle by the Board on April 13, 2016, included an amount of $3.3 million for the AMI project, while the revised spending is $2,210,000. For future years, the capital cost associated with the AMI project included in the annual capital budget should be revised based upon the most recent data.

Included in the application are proposed changes to HRWC's *Regulations*, related to the implementation of the AMI project. The proposed changes include: expanding the definition section to include AMI; providing relief to customers with respect to fees associated with AMI installation such as site visits and minor improvements (*Regulations* 19(1), (2), 25(3) and 37(1)); and stating that HRWC may require the customer to have an AMI meter installed in cases where it becomes available (*Regulation* 45A (1)).

HRWC also proposed a meter reading charge of $50 to be applied in cases where the customer decides to opt out of receiving an AMI device (*Regulation* 45A (2)). Given that the current rates are based upon the recovery of HRWC's expenses, including meter reading expenses, this

charge appears to be inappropriate at this time for current customers, who would see no change in service level, yet are asked to be charged an additional $50. In addition, this charge may also be viewed negatively by customers at a time when HRWC should be seeking support for the AMI program. However, in cases where AMI is the standard meter in use, and new customers refuse to use this standard AMI meter, there is an additional cost to HRWC and, accordingly, the proposed additional meter reading charge may be applied.

The responses to the IRs provided further clarification on some of the proposed *Regulation* changes/additions, including: a further amendment to *Regulation* 19 to add the words "...in which case no charge will be applied"; and the correction of a typo in the proposed changes to *Regulation* 37.

Conclusion

Considerable confusion was caused by the fact that the Isenor Report appeared to be based on outdated information. HRWC was left in the position of trying to provide an explanation of why the Isenor Report did not appear to support the application. In future HRWC should ensure the reports are based upon the most current information. This will reduce the need for IRs and clarifying correspondence and allow for a more timely review process.

Based upon the information provided, the Board approves the capital expenditure amount associated with the installation of AMI. HRWC's capital budgets should be amended to reflect the most recent information available with respect to the project funding timing.

The Board does not approve the addition of *Regulation* 45A(2) as proposed, which sets out a $50 charge for manual meter reads in cases where the customer refuses to permit the installation of an AMI meter. The Board approves the charge for new HRWC customers only, but the charge should not be applied to existing customers, for the reasons outlined above. The Board is prepared to revisit this issue as a part of HRWC's next general rate application.

The remaining proposed changes to the *Regulations* are approved, with the amendments noted in the IR responses. HRWC is directed to file the complete Schedule of *Regulations*, with the approved changes as a compliance filing. The Board will issue an Order approving the changes once this compliance filing has been received and reviewed. Board approval of any change from quarterly to monthly billing for smaller meter sizes, including residential customers, will be considered as a part of a future rate application.

Yours very truly,

Peter W. Gurnham, Q.C.
Chair

c. Cathie O'Toole, Director of Corporate Services/CFO, HRWC

Form B – Response to Information Request
Nova Scotia Utility And Review Board

IN THE MATTER OF THE PUBLIC UTILITIES ACT

**An Application by the Halifax Regional Water Commission,
for Approval of a Capital Project to install Automated Meter Infrastructure (AMI)
and Approval of amendments to the Regulations respecting Rates and Charges for
the provision of water, public and private fire protection, and wastewater services to
support the AMI project M07473**

RESPONSE TO INFORMATION REQUEST

To: The Nova Scotia Utility & Review Board

From: The Halifax Regional Water Commission

IR-9 to IR-11 relate to the Impact on Customers section:

Question IR-9NSUARB:

a) Is there an estimate of how many of HRWC's customers are anticipated to object to the installation of the AMI device? If so, please provide the number, and the basis for it.

b) With respect to the statement on page 11 that jurisdictions adopting AMI have taken two approaches, approximately what percentage have chosen HRWC's proposed approach of paying a fee if opting out?

c) How does HRWC's proposed fee for opt out compare to those in other jurisdictions where the "opt out" option is available?

d) What is the basis for magnitude of HRWC's proposed $50 fee for manually read meters?

Response IR-9NSUARB:

a) If HRWC's experience is similar to other utilities, it is estimated 1% (or less) of HRWC's customers may object to the installation of the AMI device. This is based on the experience at other utilities, and from the knowledge of HRWC's AMI consultant. Currently, HRWC is installing AMR meters that employ RF technology and only two or three customers a year express concern regarding the technology.

b) HRWC is not aware of any formal studies that provide this estimation. However, informal surveys of water utilities and AMI vendors, as well as consultants' experience, indicates that most utilities are adopting a manual read charge. For some of these utilities, AMI participation is mandatory. A few utilities have developed a charge for customers that want to move the AMI device from the inside of their premises to the outside; however, we are intending to install most AMI devices outside the house.

c) HRWC has focused on Canadian examples when considering the approach to dealing with customers and fees. A recent example of a major Canadian city undertaking a significant investment in advanced water meters successfully is the City of Toronto. Toronto water customers who fail or refuse to install an automated water meter are charged a non-compliance fee and could be subject to further bylaw enforcement. The Non-compliance fees (manual meter reading and legacy fee) are outlined below, in this excerpt from the City of Toronto website.

Customers who do not install an automated water meter will be charged a non-compliance fee. The fees for 2016 are as follows:

- *Customers with an existing meter will be charged a Manual Meter Reading fee of $82.55 per reading*
- *Flat rate customers (no meter) will be charged a Legacy fee of $1,101 per year*

Customers will be charged this fee in addition to what they currently pay for water supplied to their property.

These fees were enacted by City of Toronto Council in December 2013 and are subject to increase annually, pending Council approval.

Other Canadian examples include:

- Peterborough utilities charge the actual cost of monthly billing.
- Moncton and Ottawa have mandatory acceptance of AMI devices.

d) HRWC's proposed fee of $50 is based on the following estimate of what the incremental costs might be.

Incremental Salaries	105,040	Two readers - necessary for geographic coverage an cover vacation and abscences
Benefits, Training, Supplies	42,016	Forty percent of salaries
Overhead & Admin	10,504	Ten percent of salaries
Vehicle Costs	26,572	Two vehicles - cost based on current fleet charge rate
	184,132	
Divided by reads	3,335	
	$55.21	

83,380 customers X 1% who may request manual reads = 834
834 X 4 Reads per year = 3,335 reads

It is assumed the customers would be spread throughout HRWC's service area. Two meter readers are assumed to provide sufficient coverage. A ten percent overhead and administrative cost is added to reflect the manual process and additional administrative work. The cost estimate above was adjusted down ward to $50 per read.

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

SUBMITTED BY:

Original Signed By:
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

Original Signed By:
Reid Campbell, P.Eng. Director, Water Services

Original Signed By:
Susheel Arora, M.A.Sc., P.Eng. Director, Wastewater & Stormwater Services

Original Signed By:
Kenda MacKenzie, P.Eng. Director, Regulatory Services

APPROVED: *Original Signed By:*
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 1/19 - AUGUST 31/19 (5 MONTHS)
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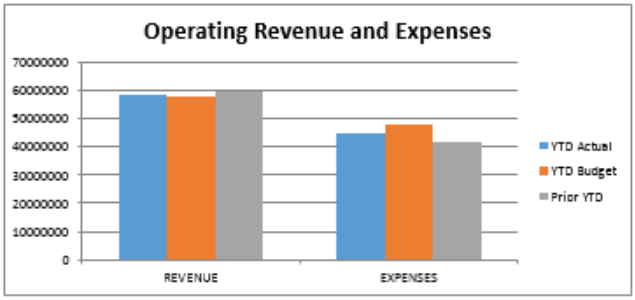
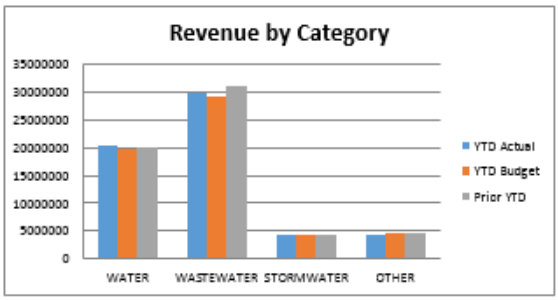


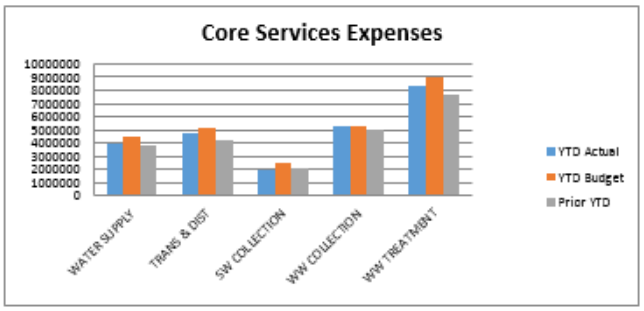


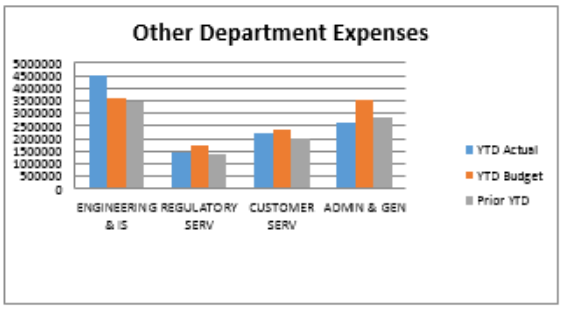
OPERATING REVENUE AND EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
REVENUE	$58,520	$57,803	$59,884	42.18%
EXPENSES	$44,737	$47,953	$41,527	38.87%
	$13,783	**$9,850**	**$18,357**	**58.31%**

REVENUE BY CATEGORY

	YTD Actual	YTD Budget	Prior YTD
WATER	$20,313	$19,899	$20,174
WASTEWATER	$29,726	$29,179	$31,033
STORMWATER	$4,140	$4,244	$4,212
OTHER	$4,341	$4,480	$4,466
	$58,520	**$57,803**	**$59,884**



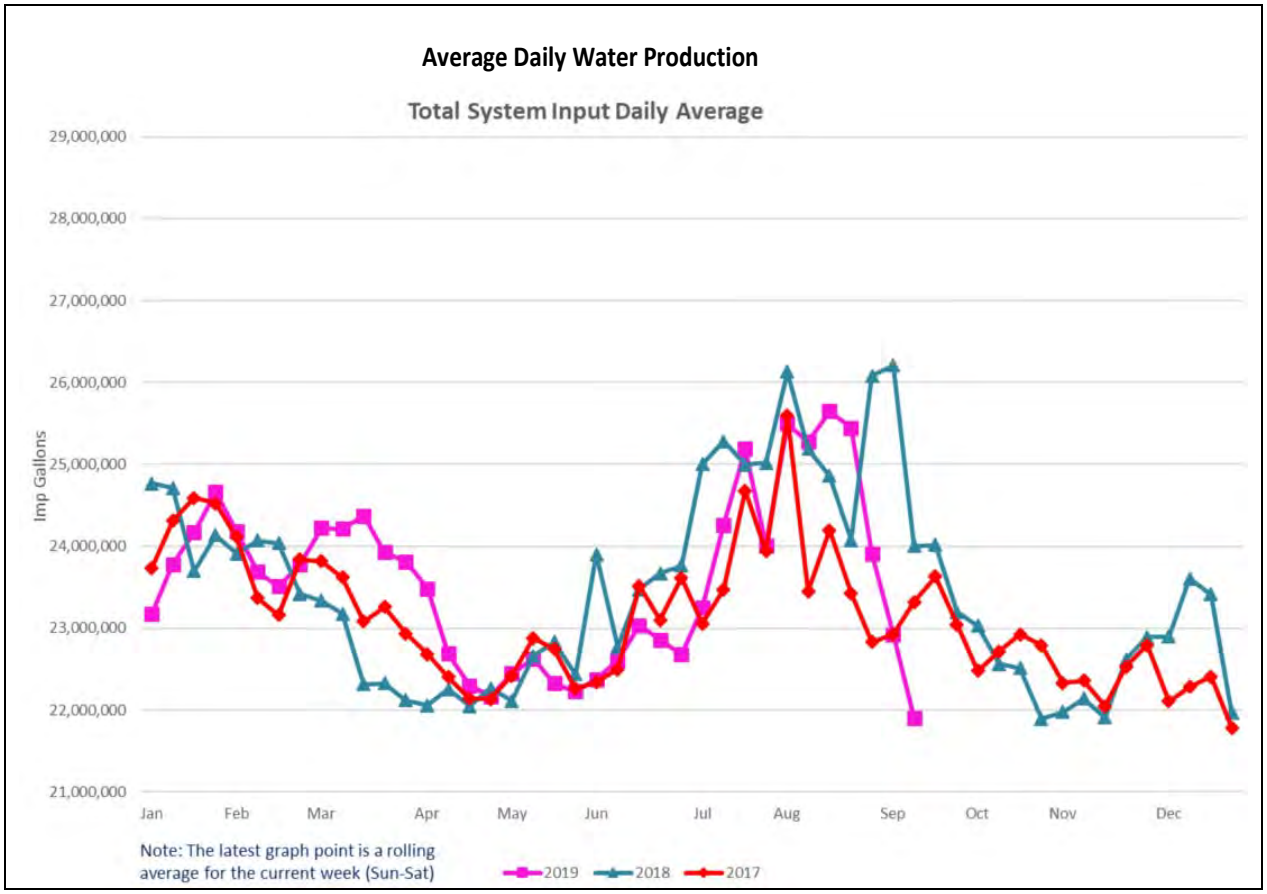


CORE SERVICES EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
WATER SUPPLY	$3,893	$4,514	$3,763	35.33%
TRANS & DIST	$4,795	$5,069	$4,145	39.41%
SW COLLECTION	$1,872	$2,412	$2,034	32.34%
WW COLLECTION	$5,283	$5,315	$5,026	41.42%
WW TREATMENT	$8,276	$8,969	$7,683	38.45%
	$24,119	**$26,279**	**$22,650**	**38.24%**

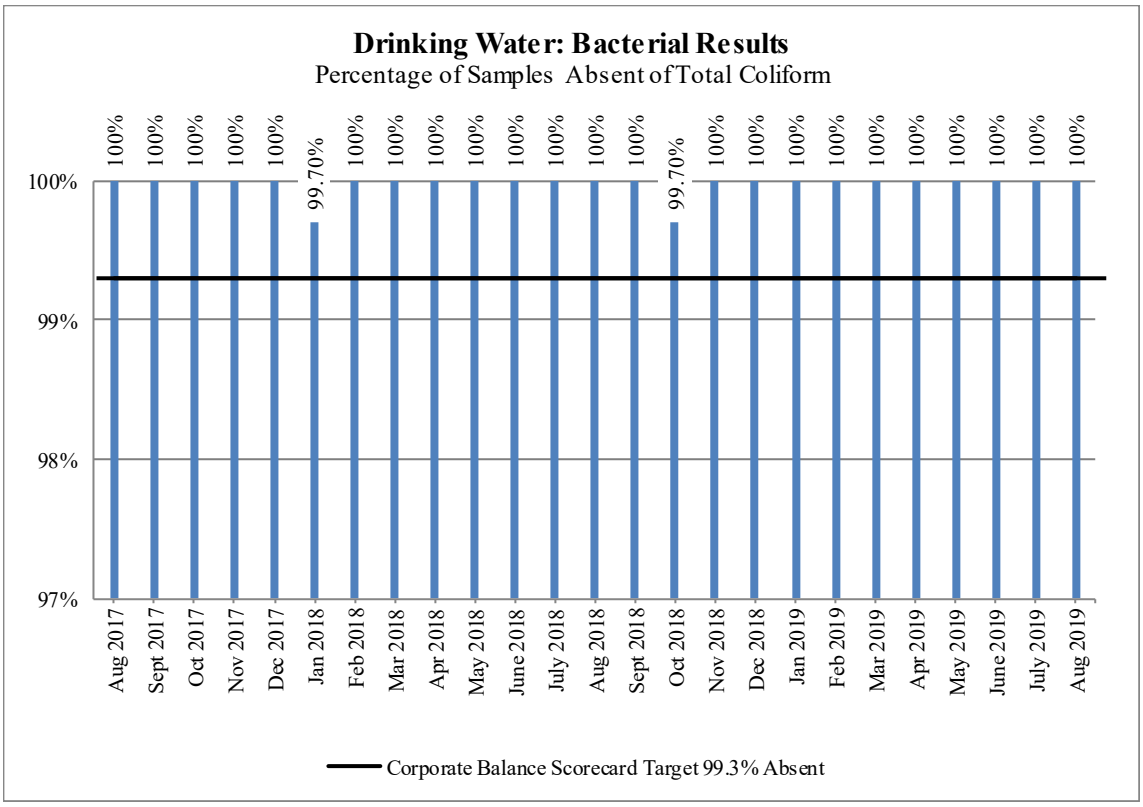
OTHER DEPARTMENT EXPENSES

	YTD Actual	YTD Budget	Prior YTD
ENGINEERING & IS	$4,539	$3,575	$3,440
REGULATORY SERV	$1,483	$1,700	$1,362
CUSTOMER SERV	$2,184	$2,386	$2,014
ADMIN & GEN	$2,618	$3,561	$2,823
	$10,825	**$11,222**	**$9,639**



Regional Water Main Break/Leak Data		
Year	**Total Breaks/Leaks**	**Current 12 Month Rolling Total *(up to August 2019)***
2017/18	206	199
2016/17	216	
2015/16	226	
2014/15	210	
2013/14	213	
Total	**1071**	
Yr. Avg.	**214.2**	

Water Accountability
Losses per Service Connection/Day (International Water Association Standard)
Period Ending June, 2019
Real Losses: 167 litres CBS Target: 160



Water Quality Master Plan Objectives 2019-2020 Q1				
Objective	Total Sites	% Sites Achieving Target	All Sites: 90th Percentile < 15 µg/L	CBSC Awarded Points
Disinfection	64	100%	---	20
Total Trihalomethanes	25	88%	---	10
Haloacetic Acids	21	86%	---	8
Particle Removal	5	100%	---	20
Corrosion Control	69	---	3.96	20
Summary Total				78

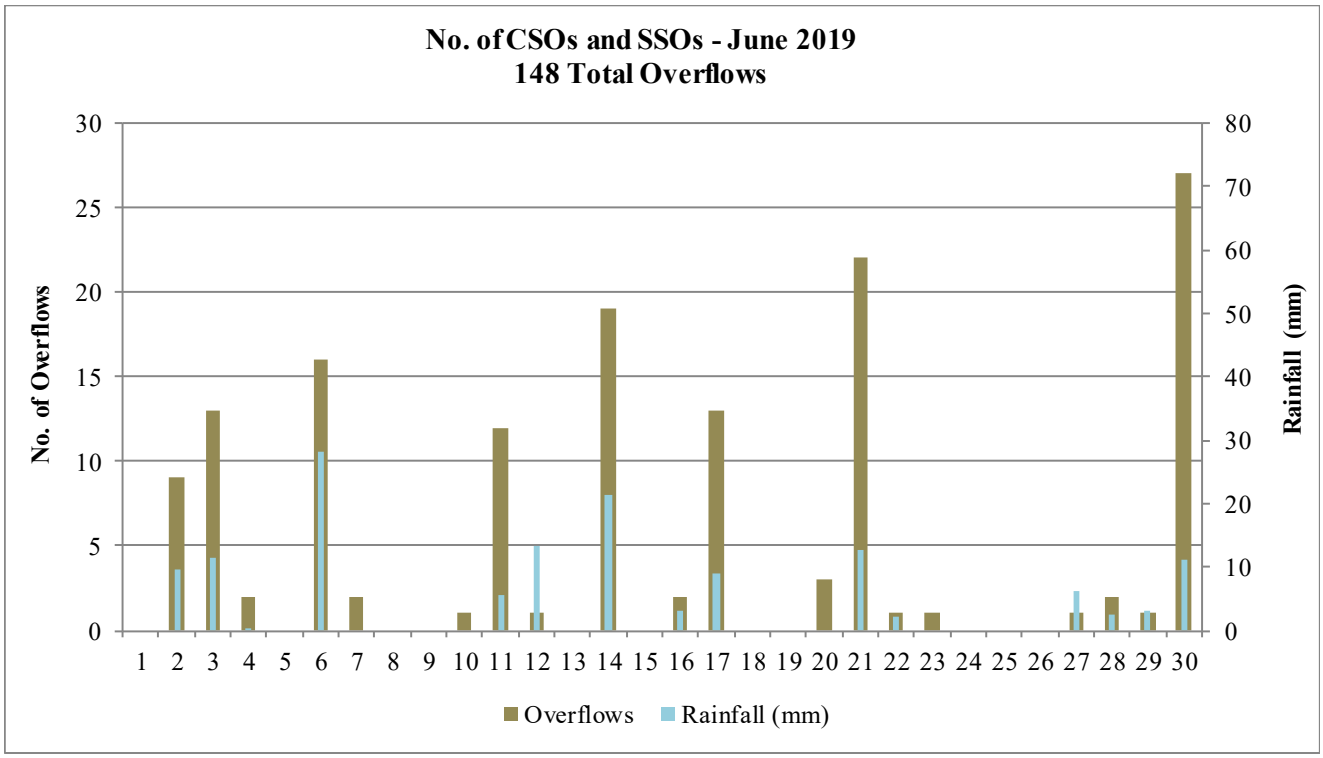
In this report each facility is assessed using monthly or quarterly averages, depending on the averaging period specified in its Approval to Operate.

Wastewater Treatment Facility Compliance Summary
Rolling Averages - June, July and August 2019

Wastewater Treatment Facility	$CBOD_5$ (mg/L)		TSS (mg/L)		E. coli (counts/ 100mL)		pH		Ammonia (mg/L)		Phosphorous (mg/L)		TRC (mg/L)		Dissolved Oxygen (mg/L)		Toxicity	Trend
	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	45	40	26	5000	3693	6-9	6.8	-		-		-		-		Not acutely lethal	Continued
Dartmouth	50	91	40	44	5000	9803	6-9	6.8	-		-		-		-		Lethal	Declined
Herring Cove	50	31	40	15	5000	73	6-9	6.9	-		-		-				Not acutely lethal	Continued
Eastern Passage	25	9	25	10	200	33	6-9	6.8	-		-		-		-		Not acutely lethal	Continued
Mill Cove	25	16	25	17	200	16	6-9	6.6	-		-		-		-		Not acutely lethal	Continued
Springfield	20	5	20	3	200	10	6-9	7.2	-		-		-		-		-	Continued
Frame	20	5	20	1	200	10	6-9	6.8	-		-		-		-		-	Continued
Middle Musq.	20	5	20	10	200	13	6-9	7.3	-		-		-		-		-	Continued
Uplands	20	9	20	10	200	10	6-9	6.6	-		-		-		-		-	Continued
Aerotech	5	3	5	1	200	10	6-9	7.6	5.7 W 1.2 S	4.4	0.13	0.11	-		6.5	7.8	Not acutely lethal	Improved
North Preston	10	6	10	4	200	10	6-9	6.9	3	0.2	1.5	0.2	-		-		-	Continued
Lockview	20	7	20	5	200	25	6.5-9	6.5	8.0 S	0.3	1.2 S	0.3	-		-		-	Continued
Steeves (Wellington)	20	4	20	1	200	10	6.5-9	7.6	14.4 S	0.1	1.0 S	0.1	-		-		-	Continued
BLT	15	7	20	19	200	10	6-9	6.9	5 W 3 S	2	3 W 1 S	1	0.02 *	0.10	-		Not acutely lethal	Improved
Avg. of all Facilities	17		12		980		6.9		1.3		0.4		0.18		7.8			

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

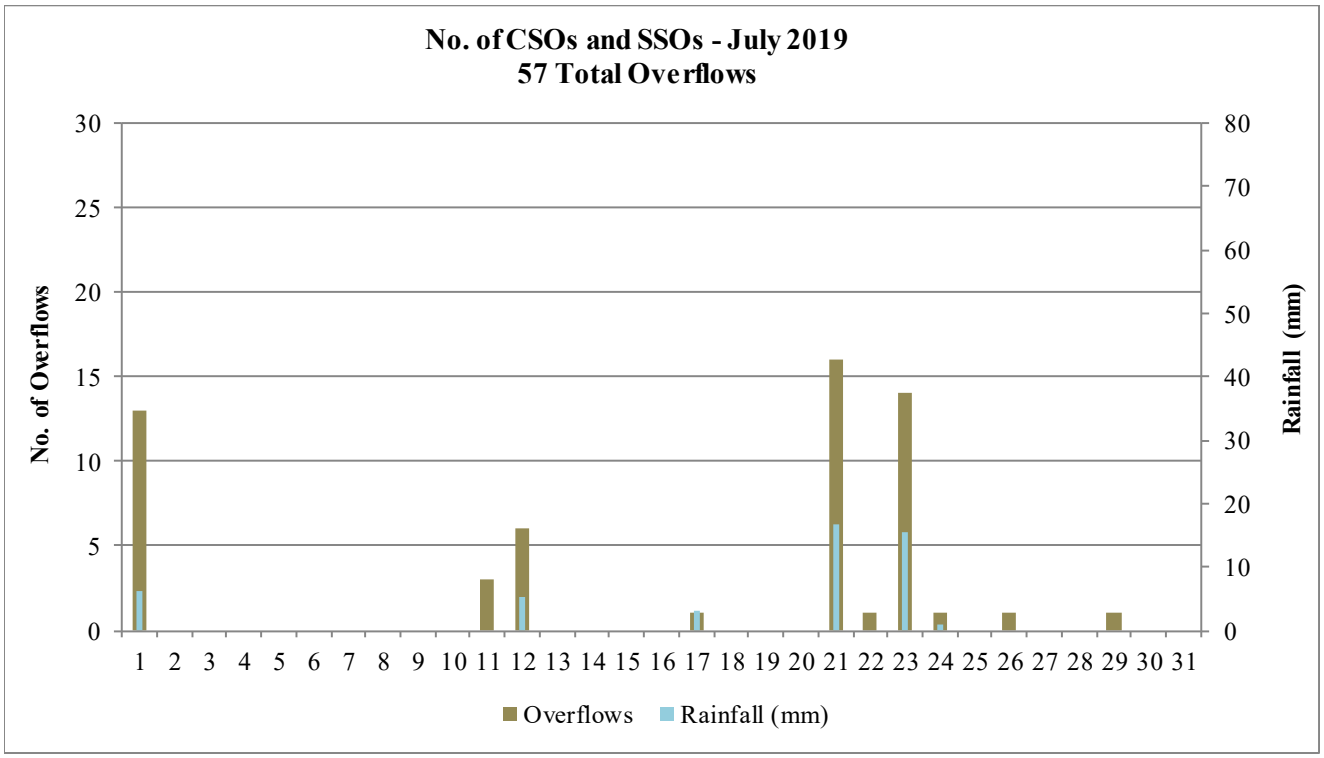
- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were seven overflows on days when there was no recorded rainfall, as follows:

1. June 7: The CSO at the Old Ferry Road PS & CSO was due to rain on the previous day. The SSO at the Herring Cove PS was due to rain on the previous day followed by a mechanical failure of the pump.

2. June 10: The SSO at the Herring Cove PS was the result of a pump inhibit caused by a power outage at the HCWWTP.

3. June 20: The CSOs at the Grove Street CSO, Wallace Street CSO and the Ferguson Road CSO were due to maintenance at the Jamieson Street PS & CSO.

4. June 23: The CSO at the Duffus Street PS was due to rain on the previous day.



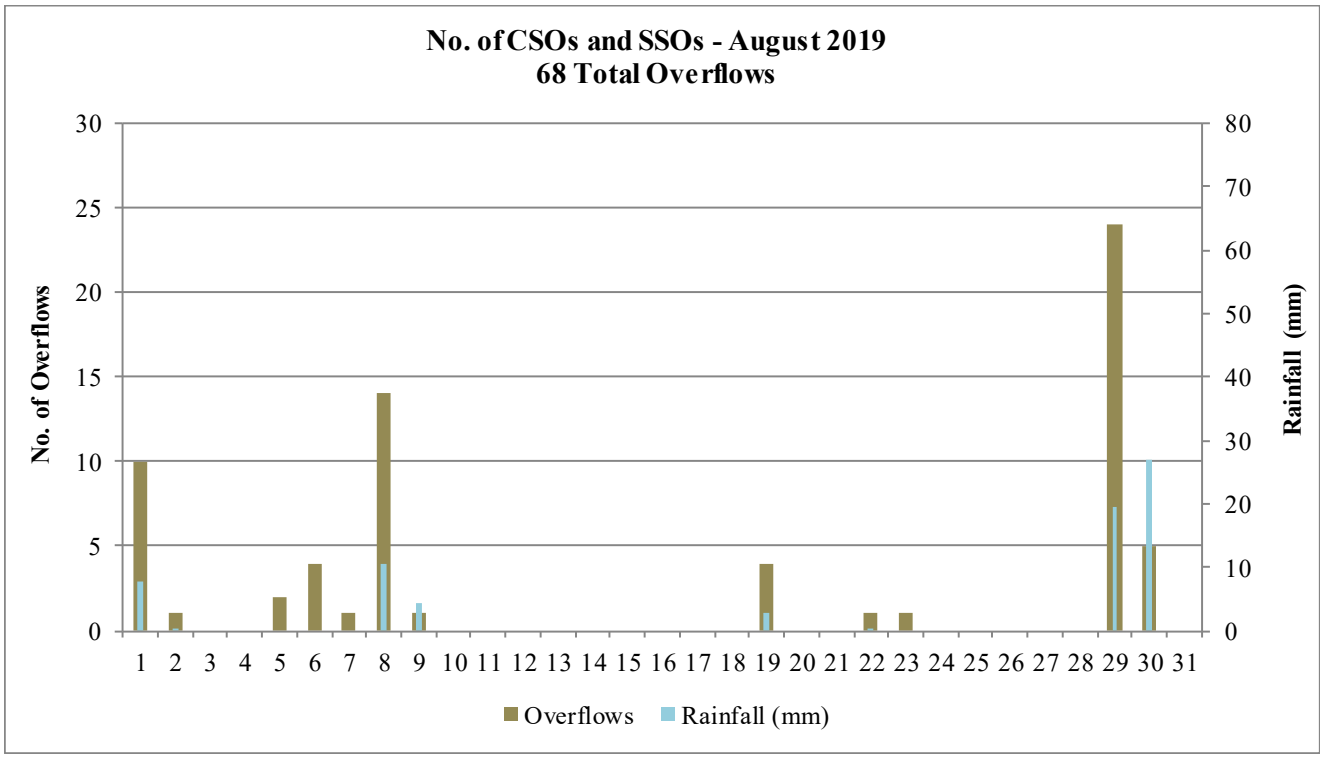
NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

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

1. July 11: The CSOs at the Lyle St CSO, the Park Avenue PS & CSO, and The Old Ferry Road PS & CSO were the result of planned maintenance performed at the Dartmouth WWTF.

2. July 22: The SSO at the Herring Cove PS was the result of a pump inhibit caused by a power outage at the HCWWTP.

3. July 26 and 29: The CSO at the Sackville St CSO was the result of blockages caused by debris.

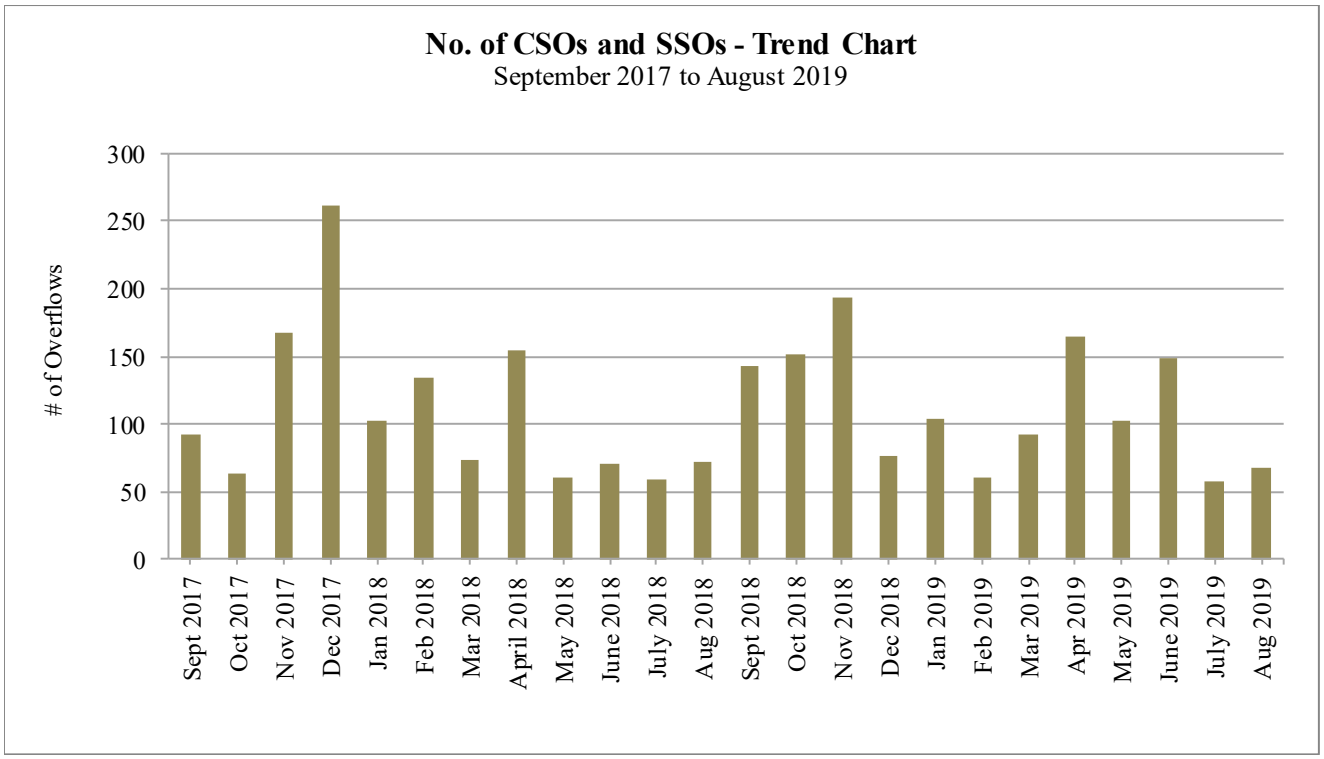


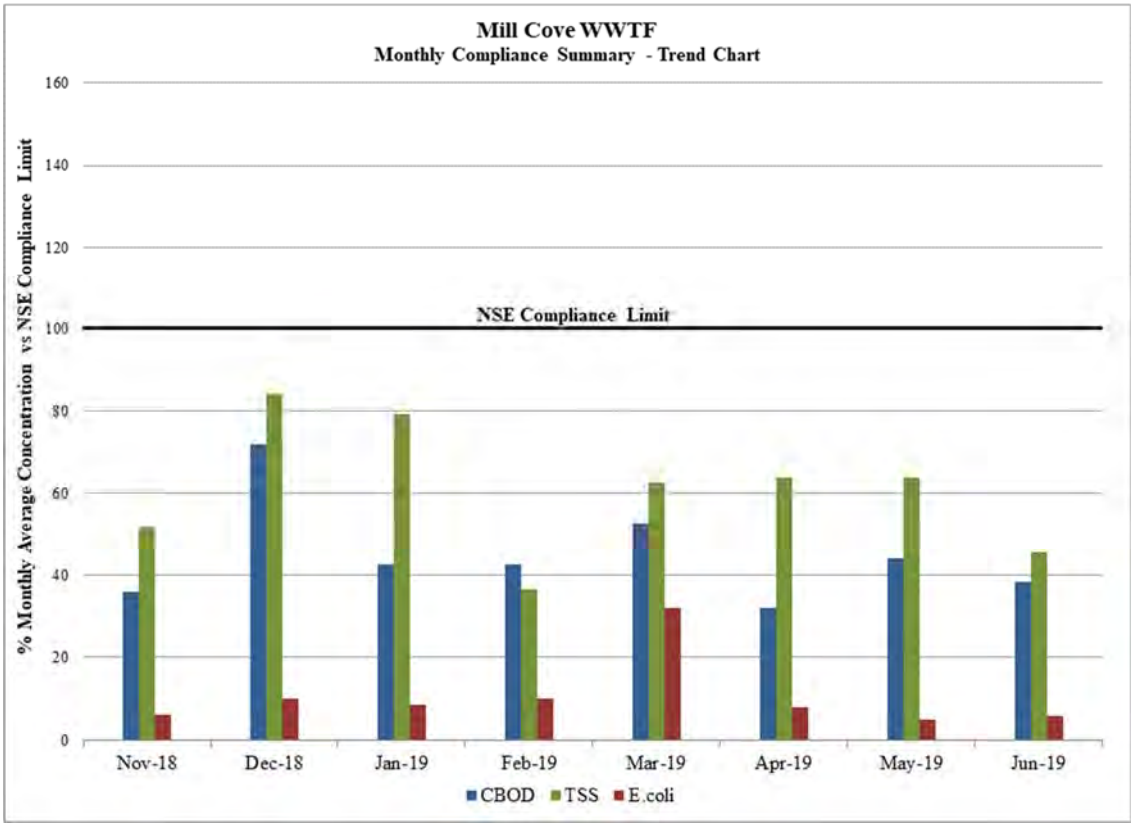
NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

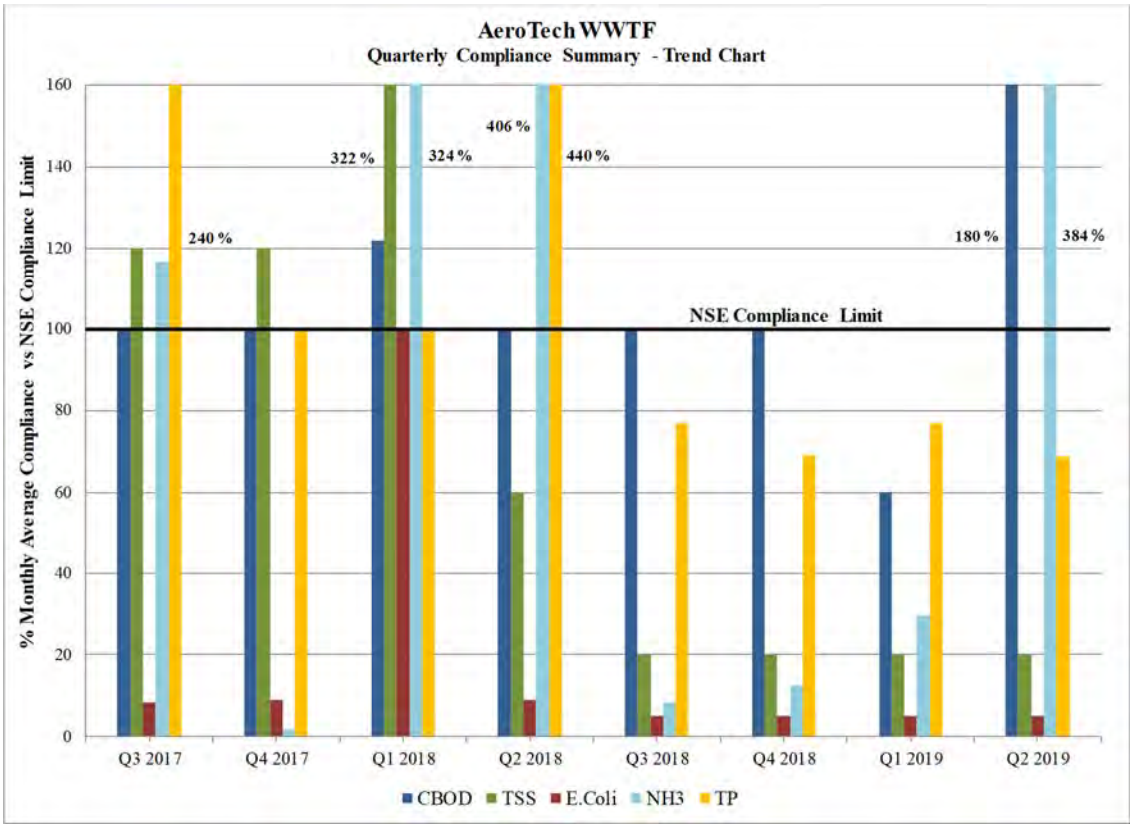
- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were eight overflows on days when there was no recorded rainfall, as follows:

    1. August 5, 6 and 7: The CSOs at Sackville St CSO were the result of blockages caused by debris.

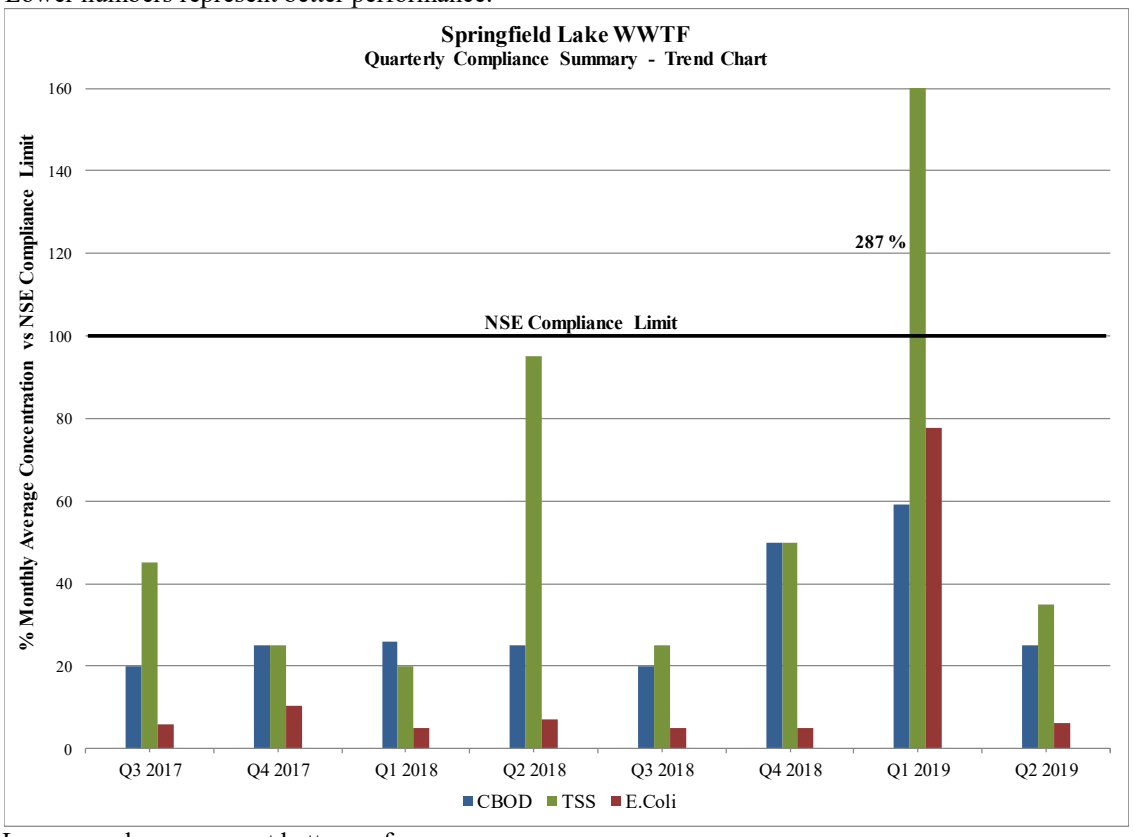
    2. August 23: The CSO at Maitland St PS&CSO was the result of blockages caused by debris.


No. of CSOs and SSOs - Trend Chart
September 2017 to August 2019
# of Overflows
300
250
200
150
100
50
0
Sept 2017
Oct 2017
Nov 2017
Dec 2017
Jan 2018
Feb 2018
Mar 2018
April 2018
May 2018
June 2018
July 2018
Aug 2018
Sept 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Apr 2019
May 2019
June 2019
July 2019
Aug 2019


Mill Cove WWTF
Monthly Compliance Summary - Trend Chart
% Monthly Average Concentration vs NSE Compliance Limit
160
140
120
100
80
60
40
20
0
NSE Compliance Limit
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
CBOD
TSS
E.coli



Lower numbers represent better performance.



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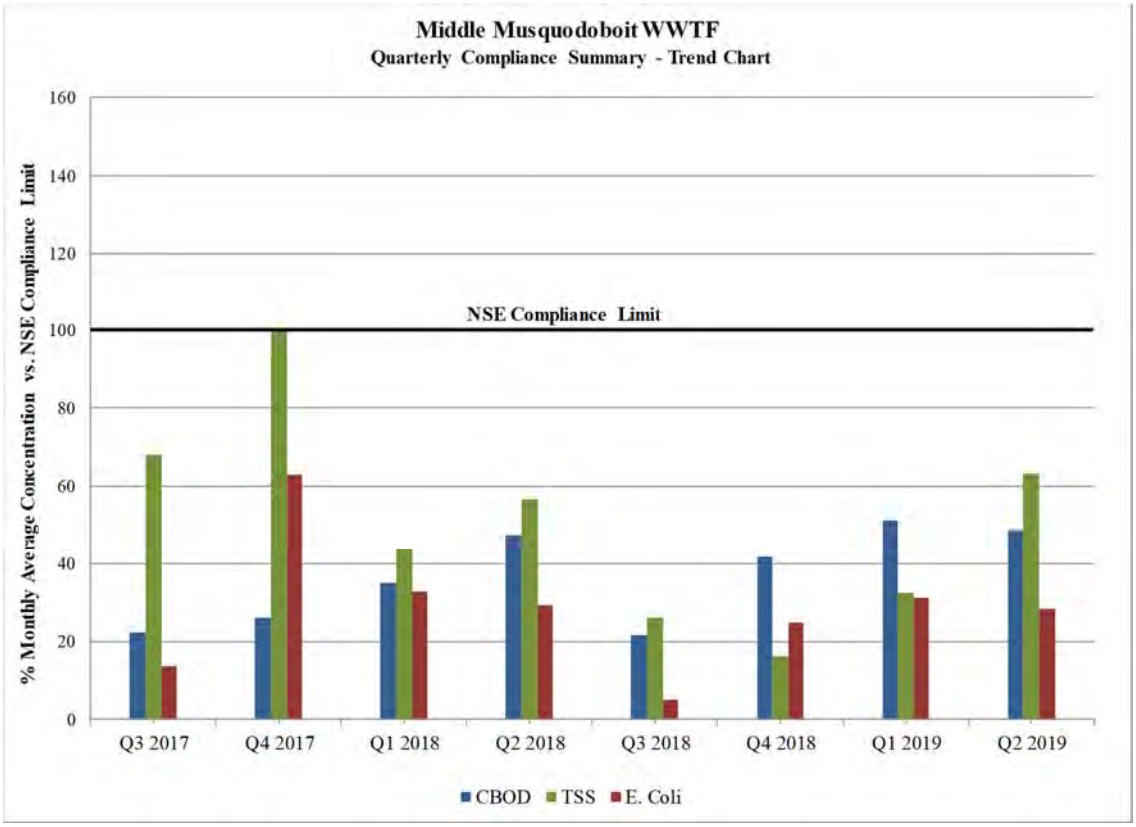

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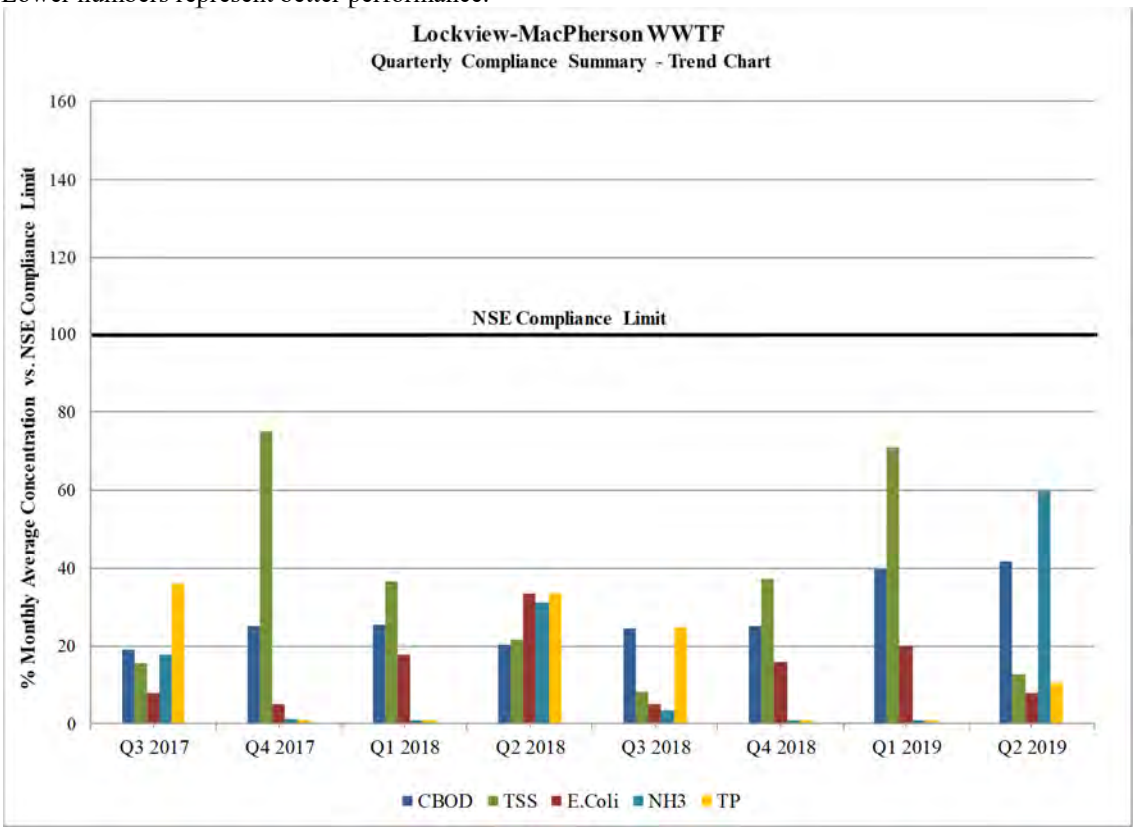

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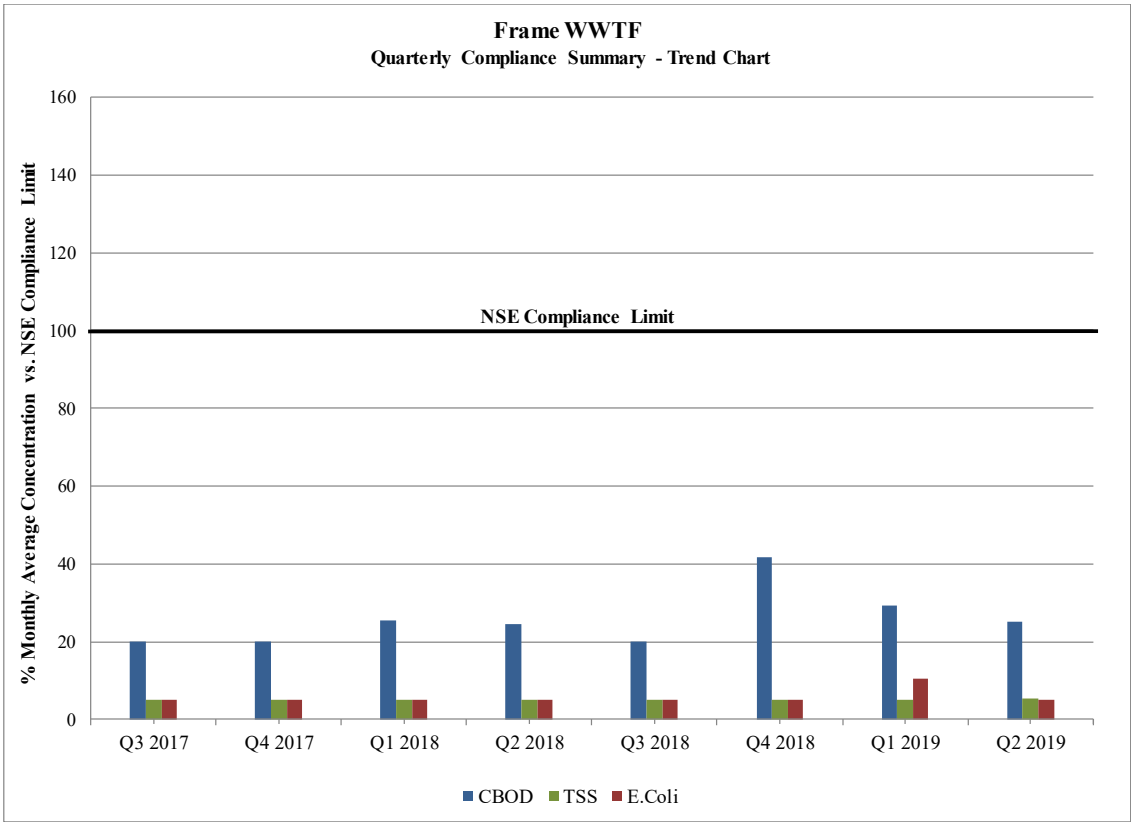

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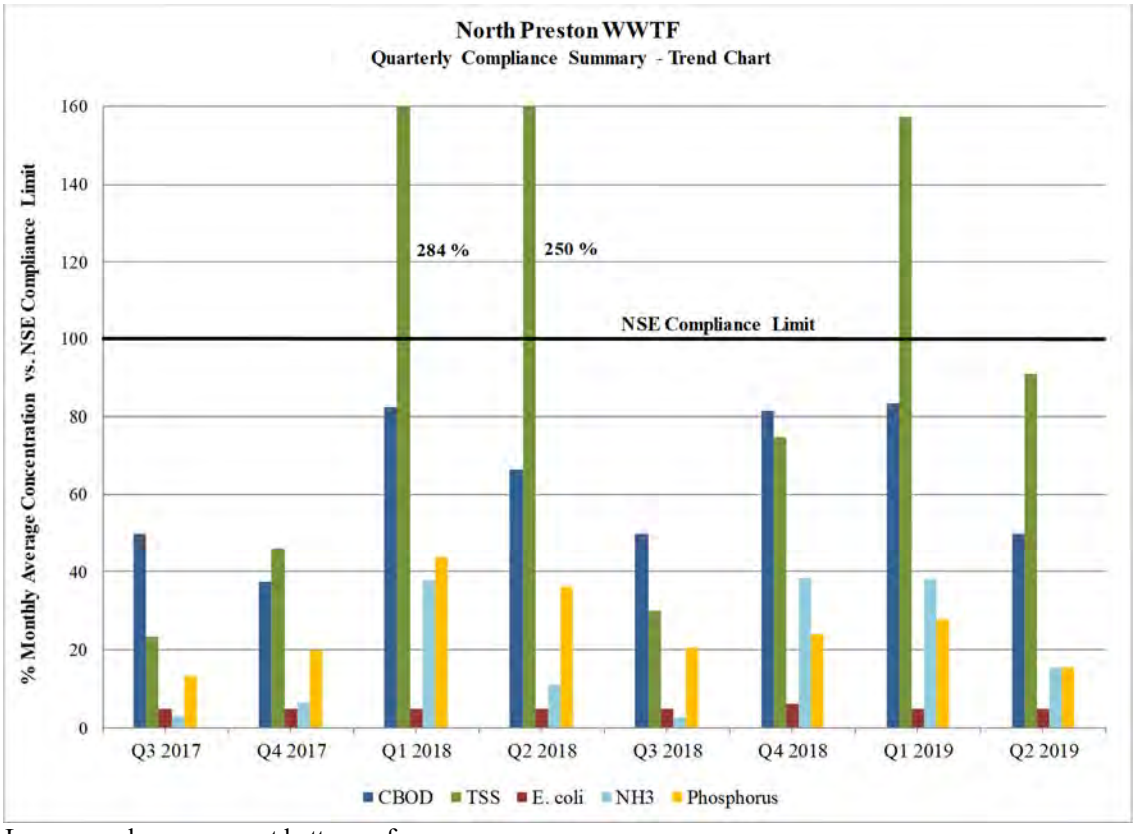

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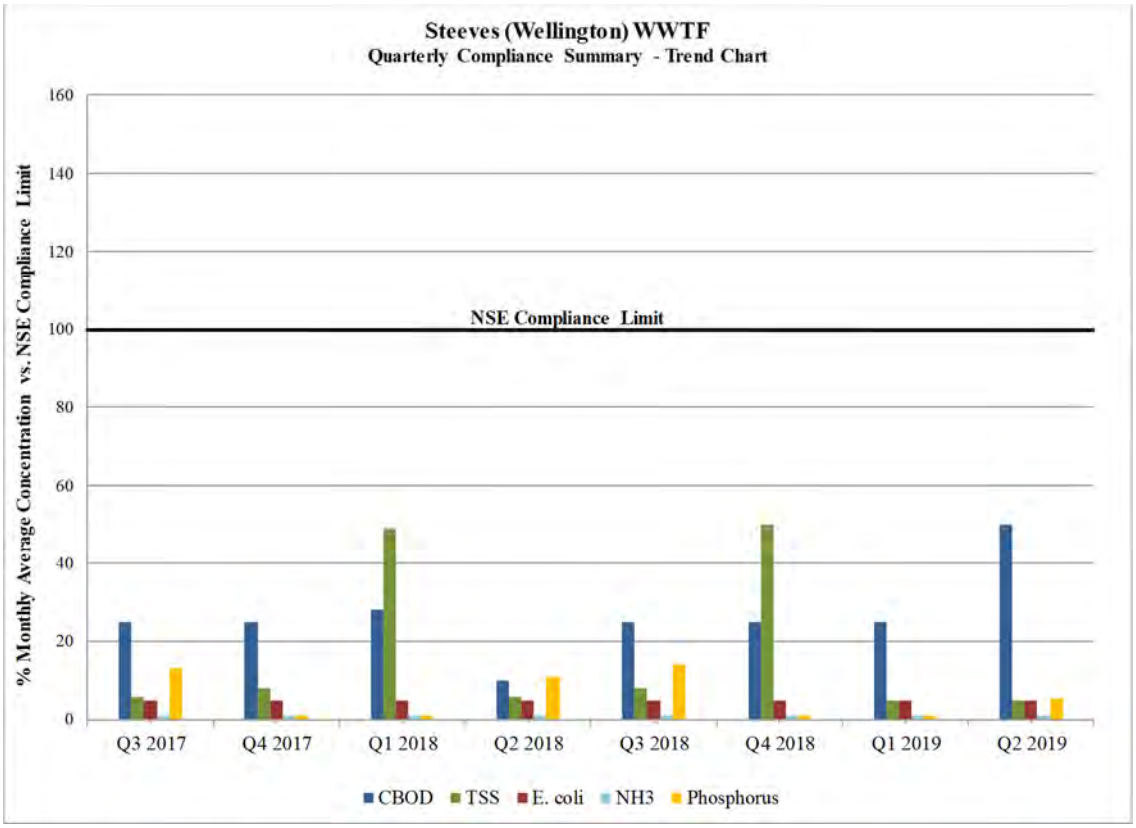

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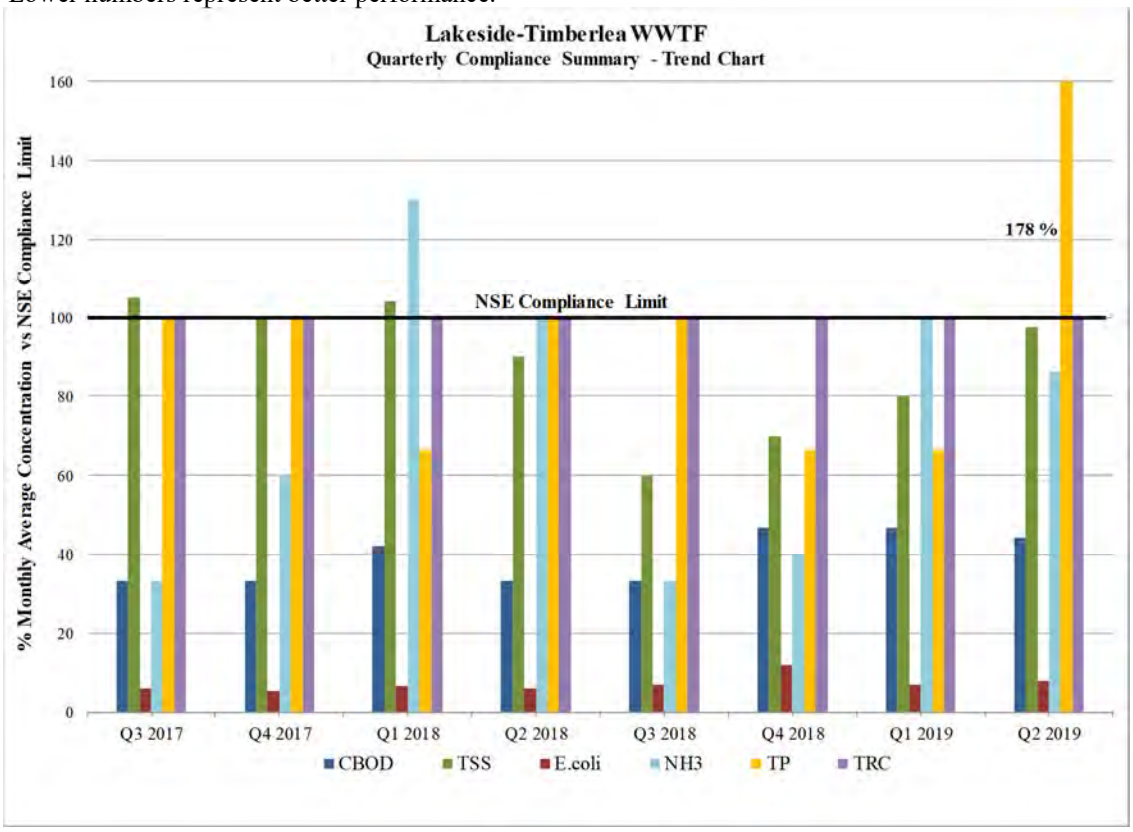

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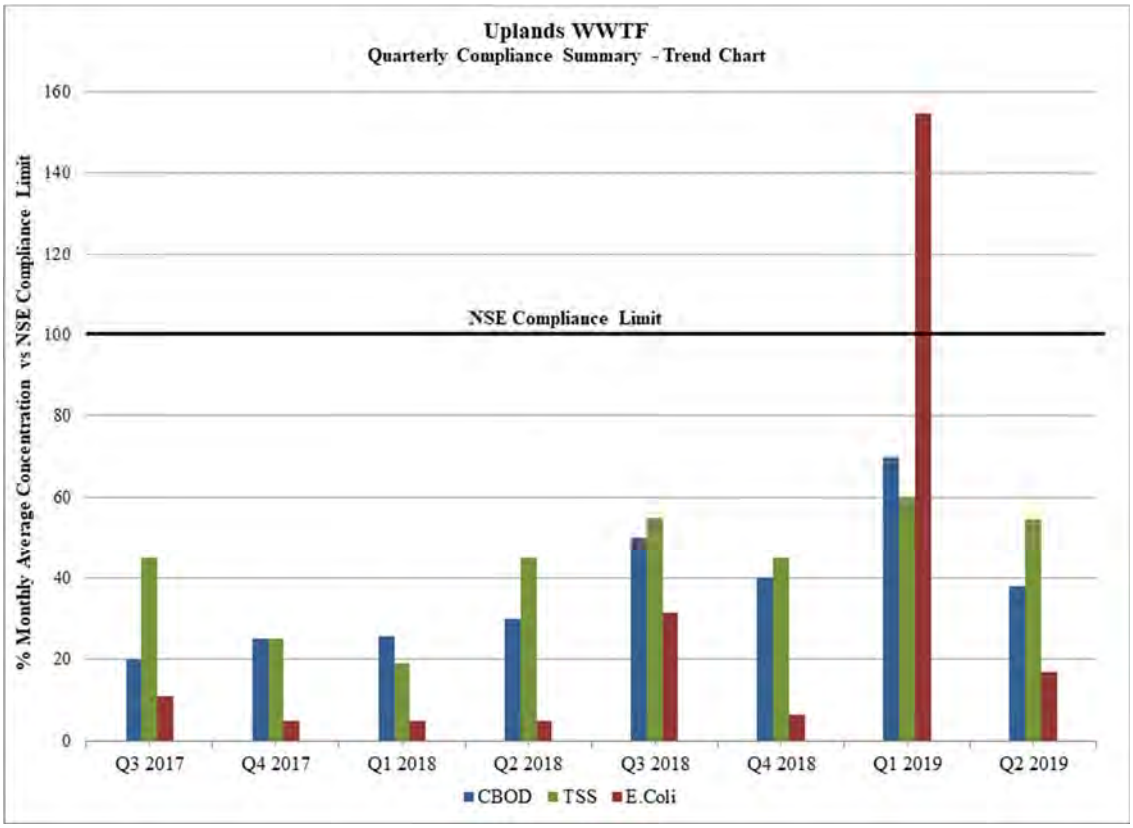

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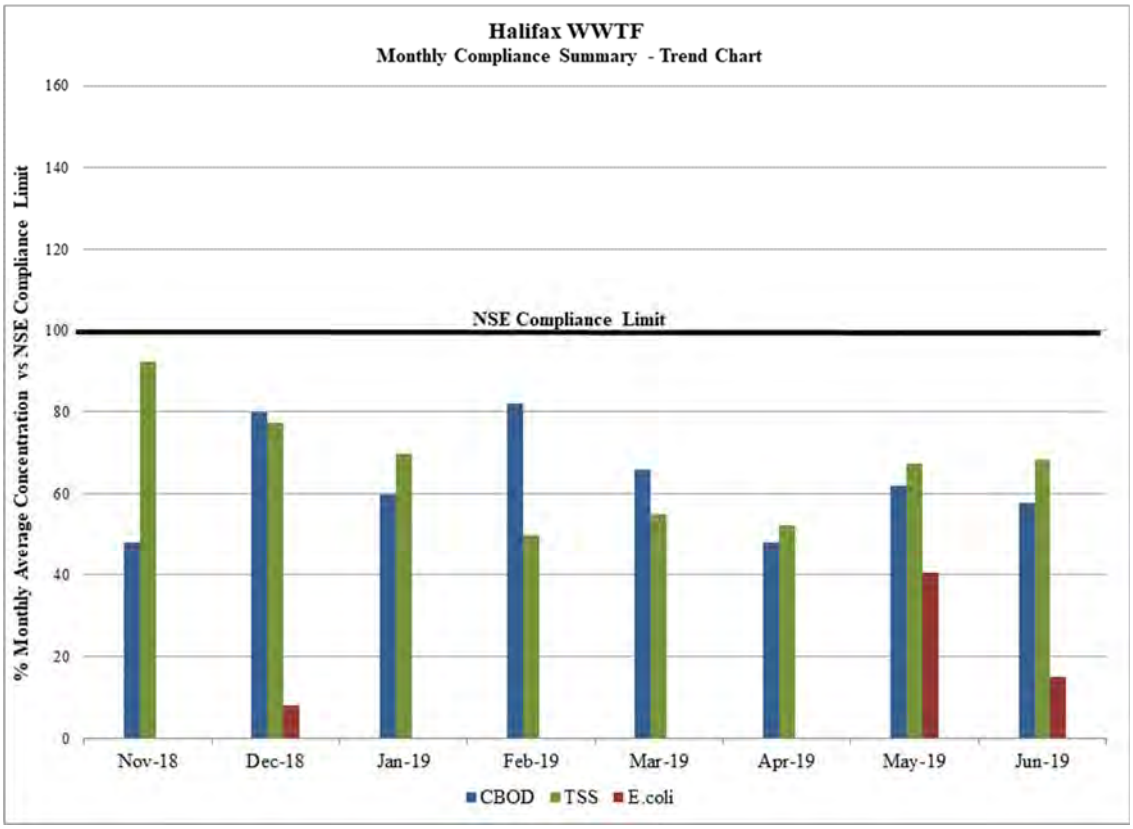

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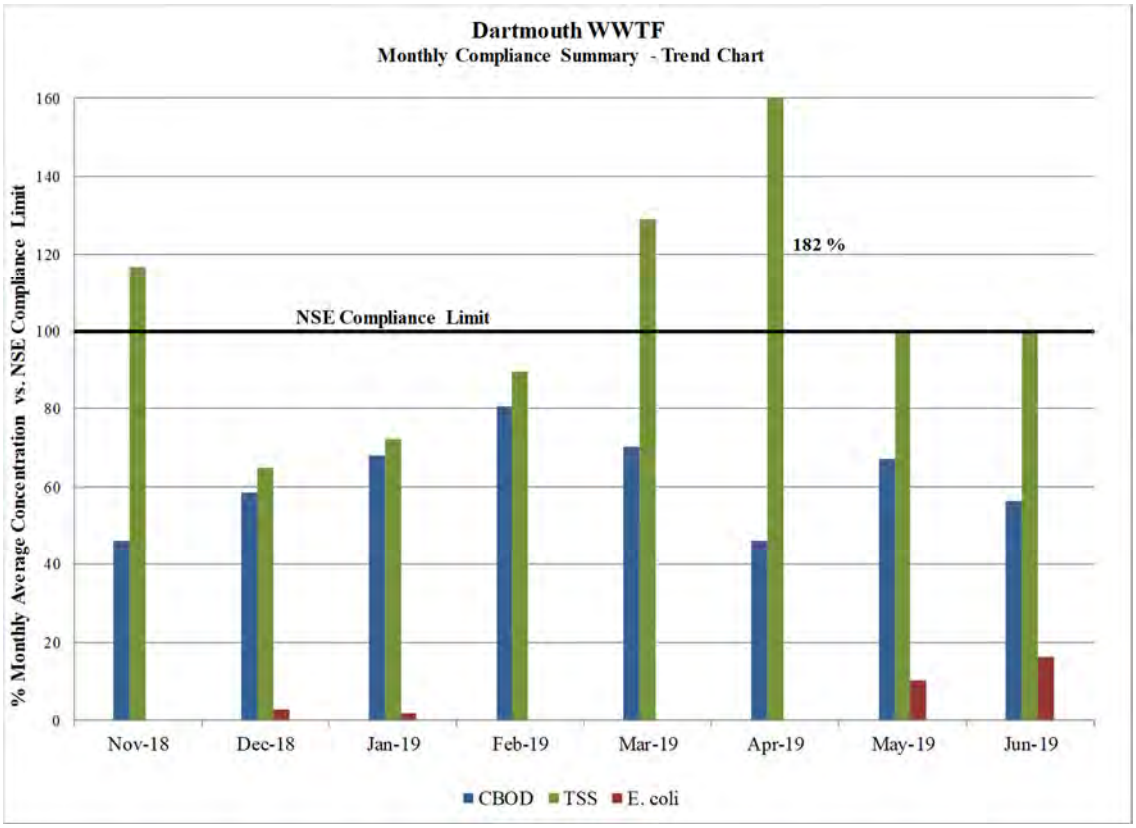

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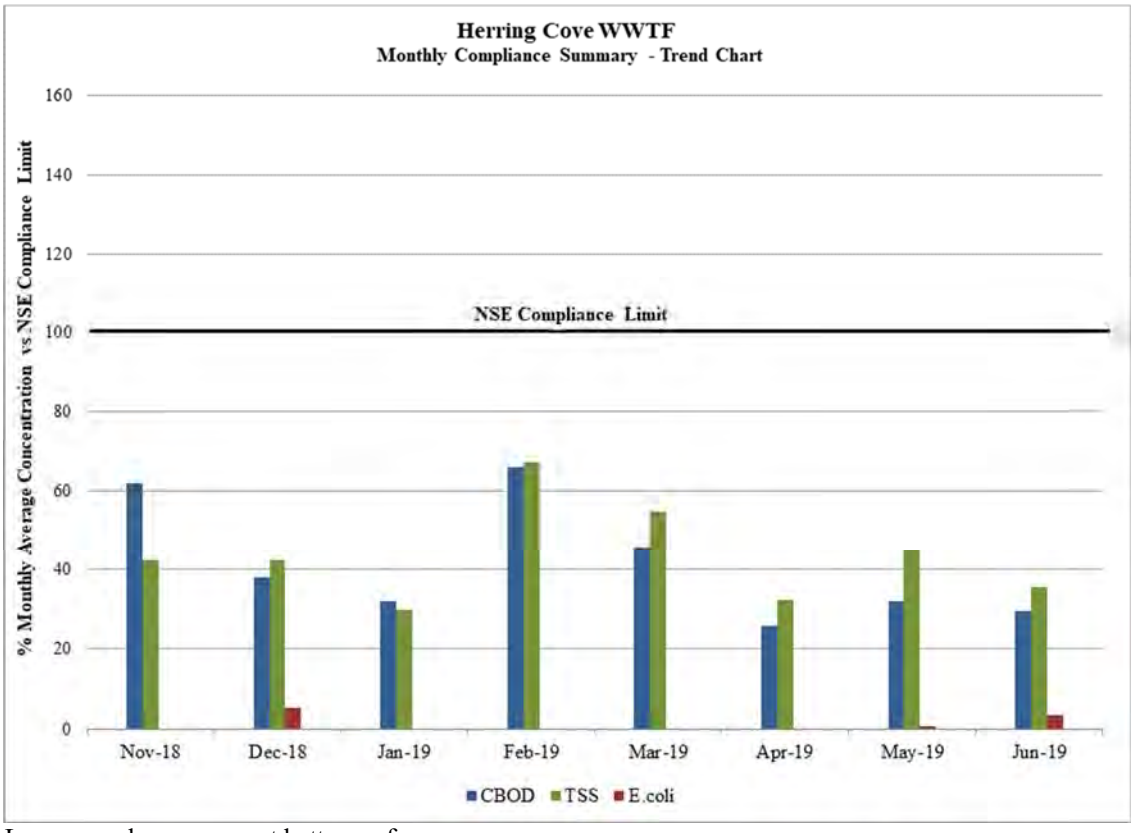

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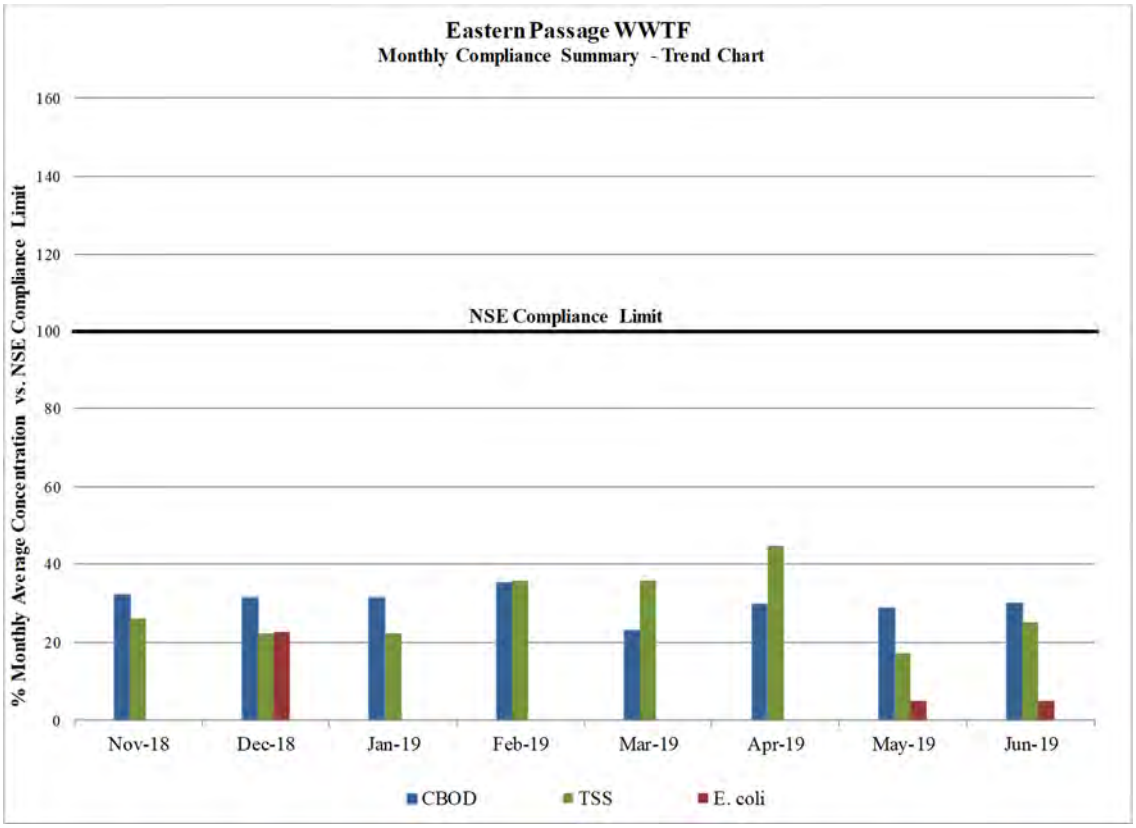


Lower numbers represent better performance.

Halifax Water
Halifax Regional Water Commission

ITEM 2-1
HRWC Board
September, 2019

CAPITAL BUDGET APPROVALS TO DATE - 2019 -2020

WATER		**CORPORATE PROJECTS**	
Approved Budget	$23,147,000	Approved Budget	$22,427,000
Approvals to date	**$17,919,920**	Approvals to date	**$9,869,578**
WASTEWATER		**Total Budget:**	$77,348,000
Approved Budget	$23,336,000	**Total To Date:**	**$51,883,524**
Approvals to date	**$16,652,026**		
STORMWATER		**Total %**	**67%**
Approved Budget	$8,438,000		
Approvals to date	**$7,442,000**		

Sept 18/19

Report Approved: **Date**
Jamie Hannam

HRWC Board Report #2-1
Capital Projects Funding Approvals 2019-2020

Category	Total Approved	Net Impact on Budget	Approval Date
Water			
Collection System			
Scotia Drive Duffus Drive Watermain Interconnection	$26,000	$0	18-May-19
Culverts/Ditches			
Quarry Road Integrated Project - Additional Funding Component Water	$193,000	$0	3-Sep-19
Distribution			
Automated Flushing Program	$20,000	$20,000	18-Mar-19
Coburg Road Bridge Watermain Replacement	$40,000	$40,000	3-Sep-19
Hydrants	$75,000	$75,000	3-May-19
Lead Service Line Replacement Program	$1,000,000	$1,000,000	3-May-19
Service Lines Renewals	$100,000	$100,000	3-May-19
Valve Renewal	$125,000	$125,000	3-May-19
Water Distribution - Main Renewal Program	$1,839,000	$1,839,000	28-Feb-19
Watermain Renewal Program (taking money for Wanda Lane and Tobin Drive)	$940,920	$940,920	5-Jun-19
Sewer Separation Program Construction of Romans Federal Avenues	$1,459,000	$1,459,000	
Energy			
Bennery Lake WSP - Tank Insulation Repairs			
Bennery Lake WSP MCC Replacement	$150,000	$150,000	3-Sep-19
Lake Major WSP Process Area HVAC Upgrades			
Equipment			
Miscellaneous Equipment Replacement	$50,000	$50,000	3-May-19
Facility			
Lake Major Dry Polymer Feed System	$120,000	$0	
Lake Major WSP Butterfly Valve Replacement Program	$120,000	$0	26-Aug-19
Land			
Bennery Lake Watershed Land			
Lake Major Watershed - Glasgow Lands			
Watershed Land Acquisition			
Security			
Security Upgrade Program	$50,000	$50,000	6-Aug-19
Structures			
Dam Safety Review			
Lake Major Dam Monitoring Program	$120,000	$120,000	11-Sep-19
Robie 2 Emergency Pump Meter Installation	$21,000	$21,000	1-Apr-19
Transmission			
Bedford West CCC - Various Phases			
Cogswell Interchange Water Transmission Main Realignments	$150,000	$150,000	
Critical Valve Replacements 2019	$225,000	$225,000	18-Mar-19
Halifax Peninsula Transmission Main Project			
Lakeside Timberlea CCC			
Lucasville Road Transmission Main - Phase 1	$6,799,000	$6,799,000	15-Apr-19
MacIntosh Estates Phase 1 Oversizing	$100,000	$100,000	15-Apr-19
Port Wallace Transmission Main - Caledonia Section	$120,000	$120,000	27-Mar-19
Treatment Facilities			
Aerotech Booster Station Capital Upgrades			
Bennery Lake Access Road Upgrade	$100,000	$100,000	17-Apr-19
Bennery Lake Filter Influent Valves	$64,000	$64,000	18-Mar-19
Bennery Lake Sludge Valve Replacement Program	$7,000	$7,000	18-Mar-19
Bennery Lake Surge Anticipator Valve Replacement	$20,000	$20,000	18-Mar-19
Chlorine Analyzer Replacement Program	$16,000	$16,000	18-Mar-19
JD Kline Back Up Power Supply Study			
JD Kline Building Envelope Upgrades	$100,000	$100,000	17-Sep-19
JD Kline Caustic Tank Liner Replacements	$16,000	$16,000	20-Mar-19
JD Kline Effluent Valve Actuator Replacement Program	$200,000	$200,000	20-Mar-19
JD Kline Low Lift Pump #3			
JD Kline Low Lift Station Crane Renewal	$75,000	$75,000	20-Mar-19
JD Kline Low Lift Station Roof Fan Shroud Replacement	$21,000	$21,000	20-Mar-19
JD Kline New Alum Chemical Supply	$15,000	$15,000	20-Mar-19
JD Kline New Lime Blower System	$35,000	$35,000	27-Mar-19
JD Kline Pilot Plant Upgrades	$200,000	$200,000	26-Mar-18
JD Kline Pre-Mix Area Mixers Upgrade	$90,000	$90,000	8-Apr-19
JD Kline Process Upgrades			
JD Kline Purchase New Microscope	$17,000	$17,000	20-Mar-19
JD Kline Raw Water Intake Traveling Screen Replacement Program	$245,000	$245,000	8-Apr-19
JD Kline Raw Water Pump Station Electrical Room Ventilation	$50,000	$50,000	16-Sep-19

Category	Total Approved	Net Impact on Budget	Approval Date
JD Kline Raw Water Pump Station Window/Wall/Building Envelope			
JD Kline Replace C02 Feeders	$475,000	$475,000	15-Aug-19
JD Kline Replace Floc Tank Valve	$35,000	$35,000	20-Mar-19
JD Kline Replace Westinghouse Electrical Panels	$8,000	$8,000	20-Mar-19
JD Kline Roof Replacement	$270,000	$270,000	1-May-19
JD Kline Upgrade the PCL			
JD Kline Upgrades to the Process Wastewater Lagoons	$150,000	$150,000	20-Mar-19
Lake Major Butterfly Valve Replacement Program	$200,000	$200,000	20-Mar-19
Lake Major C02 System Replacement Construction	$215,000	$215,000	23-May-19
Lake Major Clarifier Repair			
Lake Major Dry Polymer Feed System	$305,000	$305,000	
Lake Major Filtration System Replacement			
Lake Major Lab Relocation	$235,000	$235,000	20-Mar-19
Lake Major Overall Process and Design Study	$230,000	$230,000	18-Jun-19
Lake Major Purchase Spectrophotometers	$15,000	$15,000	20-Mar-19
Lake Major Replace Contactors in the MCC	$34,000	$34,000	20-Mar-19
Lake Major Replace the Lime Feed and Delivery System	$120,000	$120,000	27-Mar-19
Miller Lake Small System Public Main Extension Miller Lake Road	$495,000	$495,000	12-Apr-19
Purchase and Install TOC Analyzers WSP Facilities	$90,000	$90,000	18-Mar-19
Purchase and Install Water Quality Sonde Equipment	$70,000	$70,000	20-Mar-19
Reservoir Mixing and Residual Management Upgrade Program	$150,000	$150,000	10-Apr-19
Silversands WSP - Electrical/Architectural Upgrades	$150,000	$150,000	3-Sep-19
Lake Major Purchase Turbidimeter	$18,000	$18,000	20-Mar-19
Water Total	**$18,378,920**	**$17,919,920**	
Wastewater			
Collection System			
Bayers Rd Phase 2 - Sewer Separation			
Bedford West Collection System CCC	$20,000	$20,000	30-May-19
Cogswell Redevelopment Sewer Relocation	$170,000	$170,000	
Fairview, Clayton Park Bridgeview I/I Reduction	$2,500,000	$2,500,000	
Integrated Wastewater Projects Program	$1,315,000	$1,315,000	28-Feb-19
Lateral Replacements WW (non-tree roots)	$1,685,000	$1,685,000	3-May-19
Lateral Replacements WW (tree roots)	$526,000	$526,000	3-May-19
Main Street Sewer Main Replacement	$100,000	$100,000	19-Feb-19
Manhole Renewals WW	$20,000	$20,000	3-May-19
Romans - Federal Avenues Sewer Separation	$2,456,000	$2,456,000	
Sewer Relocation at South Street CN Bridge	$25,000	$25,000	15-Apr-19
Wanda Lane Sanitary Sewer Replacement	$1,050,000	$1,050,000	5-Jun-19
Wastewater System Trenchless Rehabilitation Program	$1,992,026	$1,992,026	11-Jul-19
Wet Weather Management Program	$250,000	$250,000	29-May-19
WRWIP Project Bayers Rd Phase 1 - Sewer Separation			
Energy			
HHSP - BAS+ HVAC Recommissioning	$50,000	$50,000	1-May-19
NSPI Meter Relocations	$25,000	$25,000	15-Apr-19
Pump Station HVAC Retro-Commissioning Program			
Wastewater Pumping Station Performance Testing			
Cogswell District Energy System - Engineering Consulting Services	$150,000	$0	3-Sep-19
Halifax WWTF Flow Splitting Computational Fluid Dynamics (CFD) Analysis	$35,000	$0	11-Sep-19
Dartmouth WWTF - New CSA Approved Raw Water Pumps	$225,000	$0	11-Sep-19
Equipment			
I&I Reduction (SIR) Program Flow Meters and Related Equipment	$25,000	$25,000	3-May-19
Miscellaneous Equipment Replacement	$120,000	$120,000	3-May-19
Facility			
Community Wastewater Treatment Facilities: Personal Monitoring Devices	$15,000	$0	20-Jun-19
DWWTF New Air Compressors	$55,000	$0	25-Jun-19
Halifax WWTF South Access Gate Rehabilitation	$16,000	$0	30-Jul-19
Forcemains			
Beaver Crescent PS - FM Replacement	$500,000	$500,000	23-May-19
Caldwell Road ARV/MH Replacement	$75,000	$75,000	28-Feb-19
Security			
Security Upgrade Program	$200,000	$200,000	6-Aug-19
Structures			
Autoport Pleasant Street PS Replacement			
CSO Upgrade Program			
Duffus PS CSO - Modification	$50,000	$50,000	18-Jun-19
Emergency Pumping Station Pump Replacements	$250,000	$250,000	31-May-19
Fairfield Holding Tank Rehabilitation	$25,000	$25,000	26-Mar-19
Fish Hatchery FM - ARV Chamber Water Proofing	$25,000	$25,000	28-Feb-19
Pump Station Elimination - Concept Design	$25,000	$25,000	12-Mar-19
Russell Lake PS Upgrade			

Category	Total Approved	Net Impact on Budget	Approval Date
Upper Water Street PS CSO Replacement			
Wastewater Pumping Station Component Replacement Program - Central	$250,000	$250,000	1-May-19
Wastewater Pumping Station Component Replacement Program - East	$46,000	$46,000	24-Jul-19
Wastewater Pumping Station Component Replacement Program - West	$200,000	$200,000	24-Jul-19
Windmill Road PS Replacement			
Treatment Facilities			
Aerotech WWTF Asset Renewal Program	$50,000	$50,000	5-Jun-19
Aerotech WWTF Upgrade and Expansion Project Extra Cost	$500,000	$500,000	15-Apr-19
Building Cleaning and Corrosion Protection			
Carbon Media Replacement			
Dartmouth WW Treatment Facility Coagulant Dosing Pump Replacements			
Dartmouth WW Treatment Facility Densadeg Flow Meters			
Dartmouth WW Treatment Facility Duct Work Replacement	$25,000	$25,000	8-Apr-19
Easement for Sewer and Access			
Eastern Passage WWTF Atlas Copco Blowers Spare VFD	$20,000	$20,000	8-Apr-19
Eastern Passage WWTF Drum Thickener Overhaul Spare Parts	$15,000	$15,000	8-Apr-19
Eastern Passage WWTF Outfall Inspection and Warning Signage	$15,000	$15,000	26-Apr-19
Eastern Passage WWTF Primary Sludge Pumps Spare Parts	$15,000	$15,000	8-Apr-19
Eastern Passage WWTF Process Upgrade Program			
Eastern Passage WWTF RAS Pumps Spare Parts	$40,000	$40,000	8-Apr-19
Eastern Passage WWTF Yard Lighting	$35,000	$35,000	8-Apr-19
Emergency Wastewater Treatment Facility equipment replacements	$185,000	$185,000	16-Sep-19
Grit Pump Replacement	$75,000	$75,000	15-Apr-19
Halifax WWTF AHU Coil Replacement	$45,000	$45,000	18-Jun-19
Halifax WWTF Duct work Replacement	$50,000	$50,000	8-Apr-19
Halifax WWTF New Raw Water Pumps	$50,000	$275,000	10-Jun-19
Herring Cove Wastewater Treatment Facility Duct Work Replacement Program	$25,000	$25,000	8-Apr-19
HHSP - OCS Wet Scrubber Chlorine Analyzers	$125,000	$125,000	29-May-19
HSPs - Outfall Inspection Program	$20,000	$20,000	26-Apr-19
Management Plan			
Mill Cove WW Treatment Facility Digester Mixers Failure Analysis	$20,000	$20,000	21-May-19
Mill Cove WW Treatment Facility Lining of Supernatant Pump Croc	$50,000	$50,000	21-May-19
Mill Cove WW Treatment Facility New Lab Cabinets and Countertops	$69,500	$60,000	18-Apr-19
Mill Cove WW Treatment Facility Process Upgrades - Preliminary & Detailed Design			
Mill Cove WW Treatment Facility Replace Oxygen Analyzer	$75,000	$75,000	21-May-19
Mill Cove WW Treatment Facility South Secondary Clarifier Recoat/Replace Mechanisms			
Mill Cove WW Treatment Facility South Secondary Splitter Box Rehabilitation	$30,000	$30,000	21-May-19
Plant Optimization Audit Program	$107,000	$107,000	23-May-19
Springfield Lake and North Preston - Driveway Replacement	$15,000	$15,000	23-May-19
Timberlea WWTF Asset Renewal Program			
Eastern Passage WWTF Rebuild Centrifuge 801	$50,000	$50,000	8-Apr-19
Dartmouth WWTF Grit Pump replacement	$37,500	$0	18-Jun-19
Aerotech BFP LBB Refurbishment	$130,000	$0	8-Jul-19
Trunk Sewers			
Fairview Cove Trunk Sewer	$600,000	$600,000	11-Apr-19
Sackville Trunk Sewer - Condition Assessment	$155,000	$155,000	2-Jul-19
Wastewater Total	**$17,100,026**	**$16,652,026**	
Stormwater			
Collection System			
Joe Street Additional Integrated Project	$62,000	$0	18-May-19
Pernix Crt Additional Integrated Project	$17,000	$0	18-May-19
Athorpe Street Additional Integrated Project	$10,000	$0	18-May-19
Forestglen Drive Additional Integrated Project	$44,000	$0	18-May-19
Lakeview Drive Additional Integrated Project	$31,000	$0	18-May-19
Gottingen Street Additional Integrated Project	$43,000	$0	18-May-19
Eastview Drive Additional Integrated Project	$15,000	$0	18-May-19
Quaker Cres Additional Integrated Project	$23,000	$0	18-May-19
Culverts/Ditches			
Bundy Lane near civic 79			
Coronet Avenue driveway culvert replacement project	$100,000	$100,000	30-Jul-19
Driveway Culvert Replacements	$812,000	$812,000	8-May-19
Frederick Drive at Dyke Road			
Highway 2, near civic 1380	$200,000	$170,000	25-Jun-19
Lucasville Road Sta 0+910 near civic 1155			
Lucasville Road Sta 1+595 at Third Street			
Lucasville Road Sta 2+695 near civic 758			
Lucasville Road Sta 2+850 near civic 749 and 743			
Millers Road near civic 1			
Murray Road at Caldwell Road			
Parkway Drive and Atholea Drive			

Category	Total Approved	Net Impact on Budget	Approval Date
Stormwater Survey and Studies Program			
Kipawa Crescent - Culvert Replacement Design Phase	$31,000	$0	1-Apr-19
Yankeetown Road near civic 16 (project is deferred to next budget year)	$88,000	$88,000	15-Apr-19
Kingswood Drive near civic 10	$34,000	$0	30-Jul-19
Kingswood Drive near civic 60	$34,000	$0	30-Jul-19
Sewer Separation Program - Bayers Road Phase II Project - Detailed Engineering Design	$75,000	$0	
Seth Aaron Drive near civic 40	$37,000	$0	30-Jul-19
Dartmoor Crescent Integrated Project Culvert Replacements	$134,000	$0	
Pipes			
Catchbasin Renewals SW	$60,000	$60,000	3-May-19
Celtic Drive Storm Sewer Renewal	$120,000	$120,000	22-Feb-19
Cogswell Redevelopment SW Sewer Relocation	$300,000	$300,000	18-Jun-19
Drainage Remediation Program Surveys/Studies			
Everette Street at Bonnie Brae Drive Drainage Upgrade			
Integrated Stormwater Projects	$1,200,000	$1,200,000	28-Feb-19
Lakecrest Drive CMP Replacement			
Lateral Replacements SW	$12,000	$12,000	3-May-19
Manhole Renewals SW	$15,000	$15,000	3-May-19
National Disaster Mitigation Program			
Stormwater Pipe Condition Inspections (CSP)	$100,000	$100,000	15-Apr-19
Wanda Lane Deep Storm Sewer	$205,000	$205,000	5-Jun-19
Wanda Lane Storm System Upgrade	$210,000	$210,000	5-Jun-19
Structures			
Clement St. Berm			
Ellenvale Run Retaining Wall System Phase 2	$2,220,000	$2,220,000	15-Apr-19
Ellenvale Run Retaining Wall System Phase 3 (Wanda Lane)	$1,830,000	$1,830,000	5-Jun-19
Stormwater Total	**$8,062,000**	**$7,442,000**	
Corporate			
Facility			
Building Capital Improvements			
East/Central Regional Operational Facility			
Fleet			
Fleet - Stormwater	$295,000	$295,000	3-May-19
Fleet - Wastewater	$1,180,000	$1,180,000	3-May-19
Fleet - Water	$385,000	$385,000	3-May-19
GIS			
Engineering Drawing Database			
GIS Application Support Program			
GIS Data Build			
GIS Data Project			
GIS Hardware/Software Program			
Sewer Service Entry			
Water Data Base Model			
Information Technology			
Analytics Decision Support System			
Approval Forms Framework	$112,000	$112,000	6-May-19
Computer Maintenance Management System (CMMS) Enhancements	$1,000,000	$1,000,000	24-Jun-19
Customer Portal			
Customer Transactional Site			
Data Governance	$150,000	$150,000	29-May-19
Desktop Computer Replacement Program	$290,000	$290,000	3-May-19
Document/Content Management			
IT Foundations			
IT Server Hosting			
Migrate to Office 365	$50,000	$50,000	31-Jul-19
Mobile Devices and Applications			
New payroll System	$600,000	$600,000	30-Apr-19
Permit Approvals			
Regulatory Reporting	$33,000	$33,000	30-Jul-19
SAP S4 Hana Upgrade	$348,000	$348,000	15-May-19
Stormwater Billing Support			
Telephony			
Water/Wastewater Data Quality Software Replacement			
Asset Registry			
ERP Solution Project Request for proposal Phase	$248,000	$0	24-Jul-19
Regulatory Reporting - Phase 1 Executing	$189,578	$189,578	3-Sep-19
SCADA & Other			
GPS Units - Replacement	$67,000	$67,000	22-Feb-19
Large and New Customer Meters	$460,000	$460,000	3-May-19
Meter Deployment	$2,600,000	$2,600,000	3-May-19

Category	Total Approved	Net Impact on Budget	Approval Date
SCADA Control System Enhancements	$100,000	$100,000	21-May-19
Central SCADA System Redesign/Relocation	$90,000	$0	18-Mar-19
Asset Management			
Corporate Flow Monitoring Program	$1,760,000	$1,760,000	20-Jun-19
Storm Sewer Condition Assessment	$60,000	$60,000	22-May-19
Vulnerability to Climate Change Risk Assessment - Asset Call Pilot	$100,000	$100,000	8-Jul-19
Wastewater Sewer Condition Assessment	$90,000	$90,000	22-May-19
Hydraulic Water Model Build			
Corporate Total	**$10,207,578**	**$9,869,578**	
Grand Total	**$53,748,524**	**$51,883,524**	##########

Item 3-I

20-Sep-19

FINANCIAL REPORT

Consolidated balance of the four operating accounts maintained by the Commission as of:	20-Sep-19	$39,962,905
Rate of interest on the above balance - Investment Rate of Return	0.188%	$39,962,905.00

Halifax Water
Halifax Regional Water Commission

ITEM # 4-I
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
James Campbell, Public Relations & Communications Coordinator

APPROVED: *Original Signed By:*
Cathie O'Toole, CPA, CGA, MBA, ICD.D, General Manager

DATE: September 18, 2019

SUBJECT: **2018/2019 Annual Report**

INFORMATION REPORT

ORIGIN

Ongoing operational requirement.

DISCUSSION

Staff are pleased to present the Annual Report for the 2018/2019 fiscal year. The theme of the 2018/2019 Annual Report is "Transformation".

Since its formation in 1945, Halifax Water has been presented with, and risen to, a number of challenges, all the while remaining focused on providing world class customer service and protecting our environment.

With 475 dedicated staff working to the same goals, the fiscal year 2018/19 saw a number of notable and transformational projects completed, and others reach significant milestones. These include completion of the upgraded Aerotech Wastewater Treatment Facility; development of a wastewater research program with Dalhousie University; and 50,000 water meters installed as part of the Customer Connect project. These projects provide immediate and long-term benefits to customers and the environment and put the utility on a firm footing well into the future. The utility also saw significant transformation with new leadership in some senior positions.

With the support of our customers, Halifax Water will continue its work to transform into the utility of the future, with an eye to its rich history of accomplishments.

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

BUDGET IMPLICATIONS

Annual Report costs are included in the 2018/2019 operations budget. The number of hard copies produced has been reduced in 2019/20, resulting in some cost savings. The 2018/19 Annual Report is a public document and is available on-line and as a PDF.

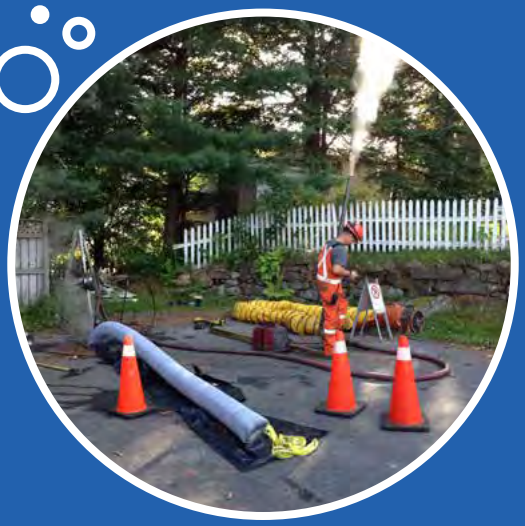
ATTACHMENT

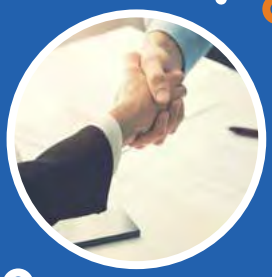
2018/2019 Annual Report

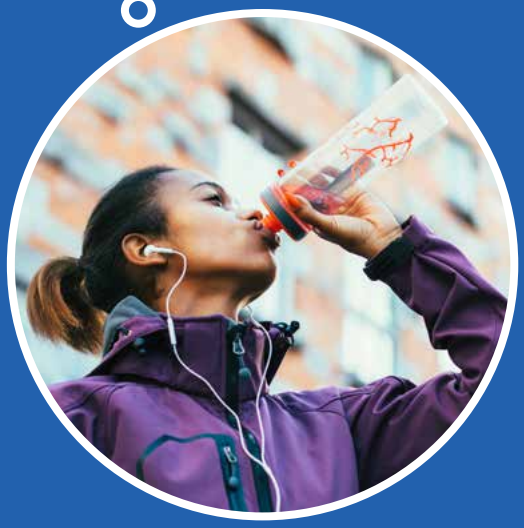
Twenty-Third

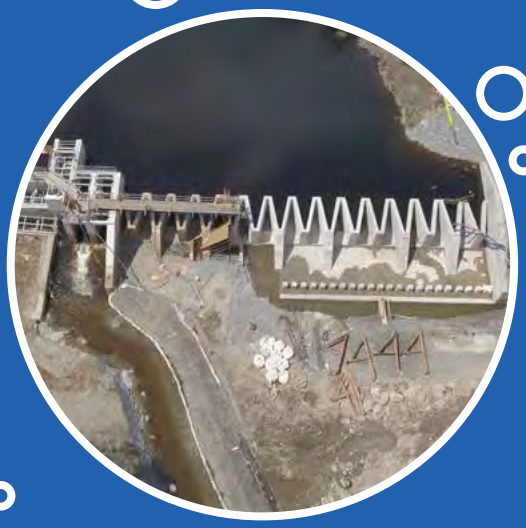
Annual Report

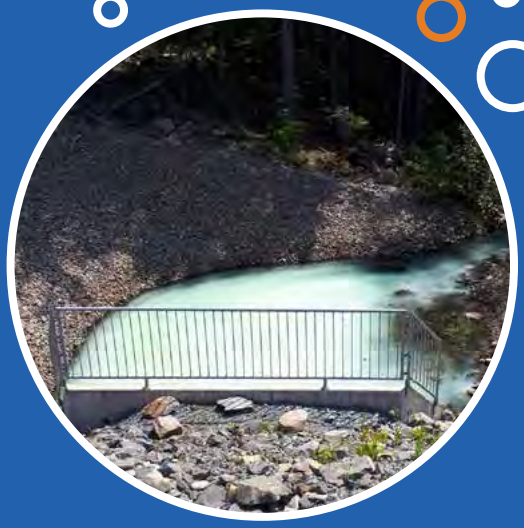
March 31, 2019









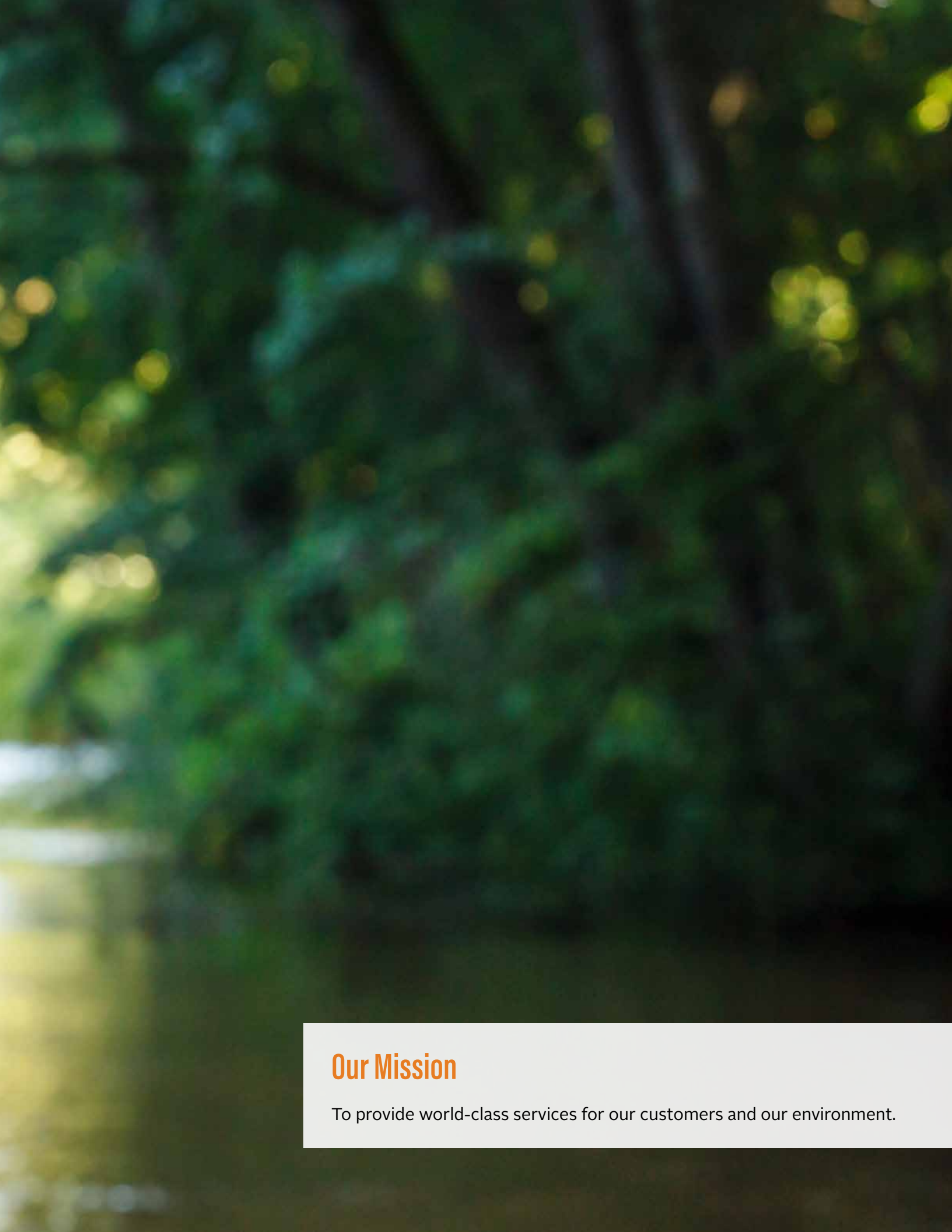


Halifax Water

STRAIGHT from the SOURCE

Cover Page:

Photos representing the “One Water” approach Halifax Water takes to managing water, wastewater, stormwater, and environmental protection. Each section of the Annual Report mirrors a line in Our Vision.



Our Mission

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

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.

Board of Commissioners

March 31, 2019

Darlene Fenton,
Chair

Councillor Russell Walker,
Vice Chair

Colleen Rollings,
Commissioner

Councillor Lisa Blackburn,
Commissioner

Jaques Dubé,
Commissioner

Craig MacMullin,
Commissioner

Councillor Richard Zurawski,
Commissioner

Councillor Lorelei Nicoll,
Commissioner

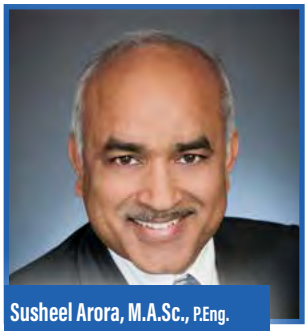
Executive Staff

Carl Yates, M.A.Sc., P.Eng.
General Manager

Cathie O'Toole, MBA, CPA, CGA, ICD.D
Director, Corporate Services

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

Darlene Fenton
Chair

On behalf of the Halifax Water Board, I am pleased to report the utility has had another successful year, with several notable achievements. These include the completion of the project to upgrade the Aerotech Wastewater Treatment Facility; progress made on wet weather management; water and wastewater research initiatives; and the Customer Connect water meter installation project that achieved a milestone of 50,000 meter installations.

The completion of the Aerotech Wastewater Treatment Facility upgrade is a significant step forward in achieving compliance with federal wastewater regulations. Similarly, the progress made on wet weather management improves wastewater service operations; and in the long term helps create capacity and enhance environmental compliance.

The Halifax Water Board is extremely proud of the water research being conducted in partnership with Dalhousie University. In 2018/19 Halifax Water also initiated the development of a wastewater research program with Dalhousie University; and entered into a tailored collaboration project with Dalhousie University and the Water Research Foundation on Lake Recovery.

It has been a year of transformation for Halifax Water, and I am pleased to have been part of it as a Commissioner and Chair on the Halifax Water Board.

Key senior positions in the organization such as the Board Chair, General Manager, Corporate Legal Counsel, and Director of Corporate Services/Chief Financial Officer have changed, or are in the process of changing.

To the customers, the change within the organization it not visible, but they see the benefits of projects such as Customer Connect, the lead service line replacement program, and expansions to Halifax Water's Help to Others (H20) customer assistance program.

On behalf of the Halifax Water Board, I would like to extend my thanks, and congratulations to all Halifax Water staff for a job well done!

Darlene Fenton
Chair of the Board

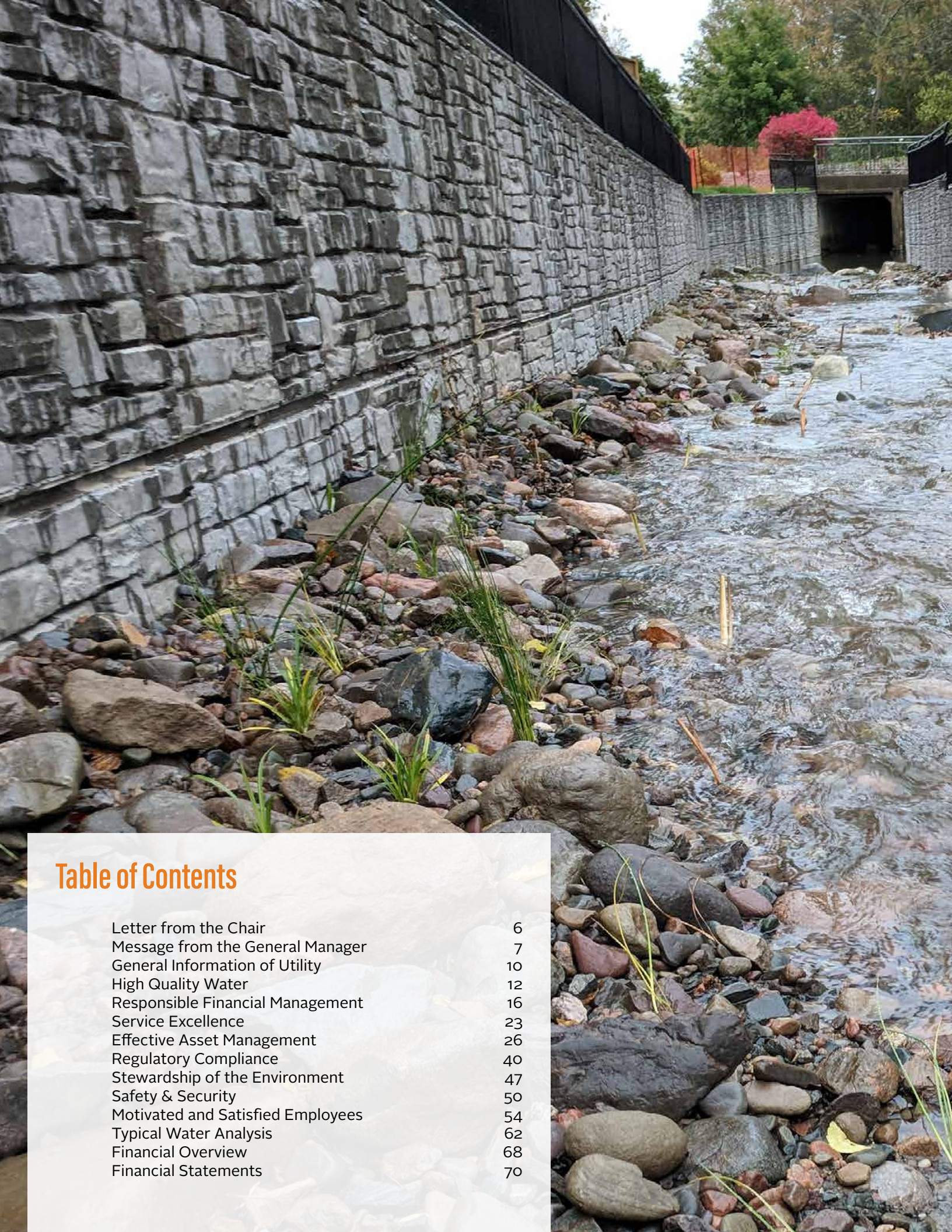
Transformation

Carl Yates, M.A.Sc., P.Eng.
General Manager

Halifax Water has morphed several times since its inception in 1945 as new challenges and opportunities were presented. The utility was significantly transformed when it commissioned the Pockwock water supply system in 1977 to serve not only the former City of Halifax but also the Halifax County Municipality. Commissioned as a regional water supply, it finally lived up to its billing in 1996 with the merger of metro municipalities when Halifax Water took on a regional mandate supplying drinking water and fire protection services to the residents of the Halifax Regional Municipality (HRM). With this new mandate came an immediate challenge to construct a new water supply plant at Lake Major to supply residents of the greater Dartmouth area. Although the project was successful, on its own right, on time and on budget, it was a catalyst for change and inspired Halifax Water to become a world leader in water loss control recovering over 40 million litres of leakage per day in the distribution system. It transformed the utility as the data collected through the program made staff more knowledgeable about the system and a more efficient and effective service delivery emerged. This did not go unnoticed by the municipality, the sole shareholder of Halifax Water, when it assessed the state of wastewater and stormwater service in 2006 and determined that things needed to change. With direction from Regional Council and the Halifax Water Board, an agreement was reached whereby the wastewater and stormwater assets were transferred from the municipalityto the utility in 2007 and Halifax Water became the first regulated water, wastewater and stormwater utility in Canada. With clear governance established through the Halifax Water Board and oversight by the Nova Scotia Utility and Review Board, the utility went right to work making investments to bring all wastewater treatment facilities into compliance with federal wastewater regulations. In a similar fashion to water loss control, compliance with the new regulations was also a catalyst to drive the utility to excellence in wet weather management. The primary focus of wet weather management was to reduce inflow and infiltration into the wastewater system to free up capacity and improve the level of service for customers. With a methodological and holistic approach, Halifax Water is recognized as a leader in wet weather management with well documented results.

All through these progressive changes, Halifax Water remained committed to keeping the customer satisfied and annual surveys conducted by an independent research firm confirm their satisfaction. It is this feedback that continues to motivate the utility to meet or exceed customer expectations. This is evident with the Customer Connect project which will see the installation of advanced metering infrastructure throughout the service area by the end of 2019. With this system in place, Halifax Water will transform once more to become the utility of the future and put consumption information in the hands of the customer. All this under the watchful eye of the next General Manager, Cathie O'Toole, who will lead the utility after serving as the Director of Corporate Services and Chief Financial Officer since 2011. She is capable and committed, the very traits needed to navigate a very fast paced world to ensure that Halifax Water remains true to its mission.

Carl Yates,
General Manager



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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, 2019 (Fiscal Year: 2018/2019)		
	Number of Accounts	Percentage of Total
Water, Wastewater & Stormwater	74,081	70.25%
Stormwater Only	19,373	18.87%
Water & Wastewater	6,416	6.06%
Water & Stormwater	4,064	3.87%
Wastewater & Stormwater	654	0.63%
Water Only	286	0.26%
Wastewater Only	80	0.07%
Total of All Types	**104,954**	**100%**

Photo Caption: Rehabilitated Ellenvale Run Channel Section with Naturalized Bottom

General Information of Utility

Year Ended March 31, 2019

Water

Treatment Processes

J. D. Kline Water Supply Plant

Source:	Pockwock Lake
Process:	Dual Media Direct Filtration, Iron & Manganese Removal
8 Filters:	143 m²/each
Max. Flow Rate:	0.137 m³/m²/min
Design Capacity:	227 000 m³/day
Design Avg. Flows:	84 230 m³/day

Lake Major Water Supply Plant

Source:	Lake Major
Process:	Upflow Clarification, Iron & Manganese Removal
4 Filters:	85 m²/each
Max. Flow Rate:	0.192 m³/m²/min
Design Capacity:	94 000 m³/day
Design Avg. Flows:	33 840 m³/day

Bennery Lake

Source:	Bennery Lake
Process:	Sedimentation, Dual Media Filtration, & Manganese Removal
2 Filters:	26.65 m²/each
Max. Flow Rate:	0.10 m³/m²/min
Design Capacity:	7 950 m³/day
Design Avg. Flows:	956 m³/day

Middle Musquodoboit

Source:	Musquodoboit River
Process:	Raw Water Infiltration Gallery, Ultra/Nano Filtration
Design Avg. Flows:	48 m³/day

Collins Park

Source:	Lake Fletcher
Process:	Ultra/Nano Filtration
Design Avg. Flows:	40 m³/day

Bomont

Source:	Shubenacadie River
Process:	Nano Filtration/ Ionic Exchange Resin
Design Avg. Flows:	8 m³/day

Silver Sands

Source:	2 Wells
Process:	Green Sand Pressure Filters, Iron & Manganese Removal
Design Avg. Flows:	27 m³/day

Five Island Lake

Source:	1 Well
Process:	UV Disinfection
Design Avg. Flows:	8 m³/day

Miller Lake

Source:	3 Wells
Process:	Arsenic Removal
No Production -	Bulk Water Supply

Infrastructure Information

Precipitation

Measured at Pockwock	
Rainfall	1501.7 mm
Snowfall	161.5 cm
Measured at Lake Major	
Rainfall	1547.2 mm
Snowfall	108.5 cm

Sources of Supply & Watershed Areas

Pockwock Lake	5 661 ha
Safe Yield	145 500 m³/day
Chain Lake	206 ha
Safe Yield	4 500 m³/day
Lake Major	6 944 ha
Safe Yield	65 900 m³/day
Lake Lemont/Topsail	346 ha
Safe Yield	4 500 m³/day
Bennery Lake	644 ha
Safe Yield	2 300 m³/day

Water Supply Production

Pockwock Lake	30 744 079 m³
Lake Major	12 351 620 m³
Bennery Lake	326 585 m³
Small Systems	46 201 m³
Total	**43 468 485 m³**

Storage Reservoirs (Elevation above Sea Level)

Lake Major	(60 m)	9 092 m³
Pockwock	(170 m)	13 600 m³
Geizer 158	(158 m)	36 400 m³
Geizer 123	(123 m)	31 800 m³
Cowie	(113 m)	11 400 m³
Robie	(82 m)	15 900 m³
Lakeside/ Timberlea	(119 m)	5 455 m³
Mount Edward 1	(119 m)	22 728 m³
Mount Edward 2	(119 m)	22 728 m³
Akerley Blvd.	(119 m)	37 727 m³
North Preston	(125 m)	1 659 m³
Meadowbrook	(95 m)	9 091 m³
Sampson	(123 m)	12 273 m³
Stokil	(123 m)	23 636 m³
Waverley	(86 m)	1 364 m³
Middle Musq.	(81 m)	275 m³
Aerotech	(174 m)	4 085 m³
Beaver Bank	(156 m)	6 937 m³
Total		**259 213 m³**

Transmission & Distribution System

Size of Mains	19 mm - 1 500 mm
Total Water Mains	1 558 km
Main Valves	15 715
Fire Hydrants	8 404
Distribution of Pumping Stations	21
Pressure Control/ Flow Meter Chambers	143

Services & Meters

Water Sprinkler Systems (25 mm - 300 mm)	2 172
Supply Services (10 mm - 400 mm)	84 849
Meters (15 mm - 250 mm)	84 489
Wastewater Services	81 233

Population Served

Halifax Municipality Estimated Population Served	370 000
Consumption per Capita (all customers)	260 litres/day

General Information of Utility

Year Ended March 31, 2019

Wastewater/Stormwater

Treatment Processes

Halifax

Process:	Enhanced Primary - UV
Design Avg. Flows:	139 900 m³/day
Area Served:	Halifax
Receiving Water:	Halifax Harbour
Volume Treated:	32 544 904 m³

Dartmouth

Process:	Enhanced Primary - UV
Design Avg. Flows:	83 800 m³/day
Area Served:	Dartmouth
Receiving Water:	Halifax Harbour
Volume Treated:	19 597 543 m³

Herring Cove

Process:	Enhanced Primary - UV
Design Avg. Flows:	28 500 m³/day
Area Served:	Halifax - Herring Cove
Receiving Water:	Halifax Harbour
Volume Treated:	3 880 692 m³

Mill Cove

Process:	Secondary - UV/Pure Oxygen Activated Sludge
Design Avg. Flows:	28 400 m³/day
Area Served:	Bedford/Sackville
Receiving Water:	Bedford Basin
Volume Treated:	10 219 553 m³

Eastern Passage

Process:	Secondary - UV/ Conventional Activated Sludge
Design Avg. Flows:	25 000 m³/day
Area Served:	Cole Harbour & Eastern Passage
Receiving Water:	Halifax Harbour
Volume Treated:	4 578 869 m³

Timberlea

Process:	Secondary - Sodium Hypochlorite/RBC
Design Avg. Flows:	4 540 m³/day
Area Served:	Lakeside & Timberlea
Receiving Water:	Nine Mile River
Volume Treated:	904 612 m³

Aerotech

Process:	Secondary - UV/ Membrane Bioreactors
Design Avg. Flows:	3 000 m³/day
Area Served:	Aerotech Park & Airport
Receiving Water:	Johnson River
Volume Treated:	269 146 m³

Springfield Lake

Process:	Secondary - UV/ Activated Sludge
Design Avg. Flows:	543 m³/day
Area Served:	Springfield Lake
Receiving Water:	Lisle Lake
Volume Treated:	155 140 m³

Fall River

Process:	Tertiary - UV/ Activated Sludge & Post Filtration
Design Avg. Flows:	454.5 m³/day
Area Served:	Lockview - McPherson Road
Receiving Water:	Lake Fletcher
Volume Treated:	58 726 m³

North Preston

Process:	Tertiary - UV/SBR & Engineered Wetland
Design Avg. Flows:	680 m³/day
Area Served:	North Preston
Receiving Water:	Winder Lake
Volume Treated:	233 142 m³

Middle Musquodoboit

Process:	UV/RBC
Design Avg. Flows:	114 m³/day
Area Served:	Middle Musquodoboit
Receiving Water:	Musquodoboit River
Volume Treated:	32 264 m³

Uplands Park

Process:	Secondary - UV/ Trickling Filter & Wetland
Design Avg. Flows:	91 m³/day
Area Served:	Uplands Park
Receiving Water:	Sandy Lake
Volume Treated:	36 793 m³

Wellington

Process:	Tertiary - UV/ Activated Sludge/ Reed Bleed
Design Avg. Flows:	68 m³/day
Area Served:	Wellington
Receiving Water:	Grand Lake
Volume Treated:	7 164 m³

Frame Subdivision

Process:	Tertiary - UV/ Membrane Reactor
Design Avg. Flows:	80 m³/day
Area Served:	Frame Sub-Division
Receiving Water:	Lake William
Volume Treated:	9 955 m³

Infrastructure Information & Glossary

Glossary of Terms

ha - hectare
m - metre
m² - square metre
m³ - cubic metre (1,000 litres)
mm - millimetre
cm - centimetre
km - kilometre

Wastewater & Stormwater Collection System

Size of Pipes	50 mm - 3 000 mm
Total Coll. System Length	2 337 km
Total Manholes	38 777
Total Pumping Stations	167
Total Ditch Length	Aprx. 600 km
Driveway Culverts	Aprx. 16 000
Cross Culverts	2 337
Holding Tanks & Retention Ponds (12-244 00 m³)	45
Catchbasins	24 398

HIGH QUALITY WATER

Guidelines for Canadian Drinking Water Quality

All Halifax Water treatment facilities continue to consistently produce water that meets the Guidelines for Canadian Drinking Water Quality, published by Health Canada.

In the previous year, Health Canada released two new health related guidelines that may be of interest to Halifax Water customers. Any health related guidelines set or changed by Health Canada are deemed to be operating approval requirements from Nova Scotia Environment.

Health Canada reduced its lead guideline from 10 to 5 parts per billion (ppb or ug/L). Further, the sampling protocol was changed from samples taken after flushing the premise plumbing for 10 minutes to one of two sampling protocols designed to reflect actual water use within the home. This has the effect of moving Canada's standard for lead to one of the most protective in the world.

Halifax Water practices corrosion control treatment and has removed many lead service lines from our system. We also have a mature lead service line replacement program with financial incentives for customers to remove sources of lead in drinking water so we are well positioned to meet this guideline. Water consumed in most homes has a lead level well below the guideline. Lead occurrence, however, is very site specific and related to the occurrence of a lead service line. We routinely discover high lead levels in individual homes with lead service lines. Any customer with the potential for a lead service line (constructed before 1960) should contact our Water Quality Group for assistance on determining if they have a lead service line, and for information on how to replace a lead service line.

Health Canada also released a new guideline on manganese. Manganese is a naturally occurring metal found in water sources throughout Nova Scotia. For many years, Health Canada has had in place an aesthetic guideline for manganese because at sufficiently high levels it can tinge water black and stain laundry and plumbing fixtures. In 2019, for the first time, Health Canada has released a health related guideline of 120 ppb. Halifax Water complies with the new Health Canada guideline. Because many of our source waters contain manganese, Halifax Water will be adopting additional surveillance and monitoring programs for manganese, particularly to guard against treatment plant and distribution system water quality changes which have the potential to temporarily elevate manganese levels.

WRF Subscriber of the Year

Halifax Water has been a subscriber of the Water Research Foundation (WRF) for over 30 years. WRF funds research into a variety of water research issues on behalf of its subscribers, particularly water utilities. In June 2018, Halifax Water was recognized as one of two S"ubscriber of the Year" recipients by the WRF.

Halifax Water was selected, in part for its long history as a subscriber but also for its proven track record of using WRF funds to conduct research that advances water supply practice for the entire sector and improves service to Halifax Water customers. Examples of this include research

WRF Subscriber of the Year Continued...

General Manager Carl Yates (right) accepts WRF Subscriber of the Year Award

into advanced pressure management for water loss control; using the water distribution system to develop electrical energy and ongoing research into adapting water treatment processes to deal with changing source water as a result of lake recovery. Halifax Water staff also participate in research projects, serve on advisory committees, or engage in research projects as a participating utility which provides an opportunity for Halifax Water staff to learn from industry leaders.

Lake Recovery Research Group Watershed Tour

Tailored Collaboration – Lake Recovery

In September 2018, Halifax Water began a Tailored Collaboration Program project with the Water Research Foundation to assist the utility in dealing with the implication of 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, caused by nitrogen oxides and sulfur emissions from coal burning power plants in the US Midwest along with prevailing westerly winds.

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 measurably 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.

The Water Research Foundation has provided Halifax Water with matching funding of US$100,000 to conduct research to better understand source water changes, how to optimize 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, treatment and water quality experts. The project will conclude in early 2020 and will be used to guide Halifax Water in planned upgrades to our large water supply plants.

Lead Service Lines

Last year marked the second season of Halifax Water's new lead service line (LSL) program. The program is designed to remove all utility and customer owned LSLs over a 30-year period. It also marked the first full season of Halifax Water offering 25% rebates (up to a total of $2,500) toward the customer cost of replacing the private portion of a lead service line, and the Lateral Loan program for customers needing financing assistance to fund the balance of the private lead service line replacement.

LEADLINE

In 2018, 105 customers received rebates totaling $ 102,333 toward replacing their lead service lines. In total, there were 128 private replacements and Halifax Water also replaced 115 public lead service lines.

Significant effort was also placed on developing a lead service line inventory to enable Halifax Water to better inform and assist customers in determining if they have a lead service line.

Halifax Water staff also work closely with staff from Halifax Regional Municipality to coordinate lead service line replacement work with planned street improvements being undertaken by the municipality.

NSERC Research Chair with Dalhousie University

This year marked the 12th 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.

Halifax Water has also developed its own internal plan for treatment process optimization using our pilot plant facilities. The aim of this program is to refine each plant process to perform at its optimal level until such time as possible treatment plant improvements are made.

Water Supply Plant Upgrades

The J. D. Kline (Pockwock) Water Supply Plant (WSP) was commissioned in 1977. The plant has performed well, providing high quality water to customers on the west/Halifax side of the Harbour. Over the last several years, Halifax Water has continued to invest in upgrading this facility as components reached the end of their useful life or became obsolete. To that end a program to upgrade all plant chemical feed pumps was completed last year. We are also nearing the completion of an 18 month project to replace the underdrains and filter media in each of the plant's eight filters. While upgrading the filters, the opportunity was taken to install air scour capability on the backwash system. Both initiatives are providing improved performance on the already completed filters. This project is expected to be complete in the fall of 2019.

J. D. Kline Water Supply Plant

The J. D. Kline WSP is a direct filtration plant. Direct filtration plants are designed for very high quality source water which is what we have in Pockwock Lake. In recent years, as levels of naturally occurring organic matter in the lake has increased due to lake recovery, the plant can be challenged when source water quality conditions change suddenly. Planning is underway to upgrade the plant within the next five years.

The Lake Major Water Supply Plant was commissioned in 1999. In 2016, a plant optimization study was completed to lay out a plan for modernizing the plant over the next ten years. Last year the emergency power supply system was upgraded. Individual plant component systems are upgraded as needed.

Significant projects being initiated this year include a new intake and pumping station components. Improvements to other plant unit processes will begin in subsequent years.

RESPONSIBLE FINANCIAL MANAGEMENT

Annual Financial Results

Halifax Water received a clean audit opinion for the fiscal year ended March 31, 2019. The financial statements are presented in accordance with International Financial Reporting Standards. Halifax Water also produces financial information in the format required by the NSUARB - the NSUARB Accounting and Reporting Handbook (Handbook) for Water Utilities.

The differing requirements result in two unique sets of financial statements. The financial summary information shown on page 69 of the Annual Report aligns with the NSUARB Handbook. The external financial statements reproduced on pages 70 to 97 of the Annual Report align with IFRS and were prepared in conjunction with the annual audit by Grant Thornton. Ongoing differences between NSUARB and IFRS will steadily increase as debt increases. IFRS does introduce more volatility, particularly around post-employment benefits. The NSUARB handbook will continue to be used for rate making. Schedules C, D, E, F, and G of the Audited Financial Statements are based on NSUARB Accounting and Reporting Handbook. The financial statements also include the report of the auditor, Grant Thornton.

Annual Financial Results Continued...

The key differences under IFRS are:

1. depreciation on contributed assets is included in the income statement, resulting in higher depreciation expense;
2. amortization of contributed capital is included in the income statement, resulting in higher non-operating revenue;
3. Some assets are componentized with shorter useful lives, resulting in higher depreciation expense;
4. long-term debt principle payments are not included in the income statement, resulting in lower non-operating expenses;
5. the full actuarial liability of employee future benefits is reported as Other Comprehensive Income. This may result in either positive or negative impacts on income, and;
6. contributed capital is treated as a long-term liability, resulting in much higher long-term liabilities and much lower equity.

The Net Income for the year under the NSUARB Handbook is $0.4 M. Under IFRS, Total Comprehensive Earnings are $16.1 Million, and an explanation of the difference is shown below.

NSUARB Handbook Net Income	+$0.4 M
Include non-cash Pension Plan expense	-$5.2 M
Remove debt principle appropriation expense	+$20.5 M
Deduct depreciation on contributed assets	-$17.8 M (offset)
Amortize contributed capital as revenue	$17.8 M (offset)
Various depreciation adjustments on componentized assets and pre-1985 asssets	-$3.3 M
Gain on OCI Other Comprehensive Income (benefits)	$3.7 M
IFRS Total Comprehensive Earnings	**$16.1 M**

The main differences are debt principle appropriations of $20.5 million that are not included as an expense under IFRS, accrued pension expenses of $5.2 million that are not included under the NSUARB Handbook, and some differences in how assets are componentized and depreciated resulting in $3.3 million dollars of additional depreciation expense. IFRS requires the reporting of changes in the full actuarial liability of employee future benefits as Other Comprehensive Income. This may result in either positive or negative impacts on income in any given year. In 2018/19, this resulted in a gain of $3.7 million which is reflected as Other Comprehensive Income, bringing IFRS Total Comprehensive Earnings to $16.1 M. ($12.4 IFRS Earnings for the Year, plus $3.7 M Other Comprehensive Income/Loss).

Halifax Water's cash balance of $51.6 million is on par with last year, and is higher than the utility had projected due to higher consumption revenue and Regional Development Charge (RDC) collections, and lower capital expenditures than anticipated. The liquidity on the balance sheet (ratio of current assets divided by current liabilities) is very positive at 1.99.

Plant in Service assets, net of Accumulated Depreciation, is $1.28 billion and is $43.3 million (3.5%) greater than last year. There were $80.7 million in capital work orders closed during the year, increasing Plant in Service. At year end there was $29.6 million in Capital Assets Under Construction, compared to $24.6 million the prior year.

Capital Asset Additions

	Cumulative '000
Aerotech Wastewater Treatment Facility	**$23,997**
Fall River Water Servicing	**$10,167**
AMI - Advanced Metering Infrastructure	**$6,596**
Mainline Lining Program	**$4,233**
Wastewater Lateral Lining Program	**$1,980**
Wastewater Lateral Replacement Program	**$1,748**
All Other Projects	**$31,939**
Total	**$80,659**

Expenditures on Capital Projects budgeted within the fiscal year total $64.5 million, The Aerotech Wastewater Treatment Facility was the largest project completed, with a value of $24.0 million. The Fall River Water Servicing project, valued at $10.2 million, is completed but is treated as a donated asset as it was fully funded through Federal and Provincial programs and HRM Local Improvement Charges. Meters installed during the year through the AMI – Advanced Metering Initiative were capitalized, totaling $6.6 million. The remaining meter installations and associated technology are expected to be capitalized in 2019/20.

Capital Asset Under Construction	Cumulative '000
AMI - Advanced Metering Infrastructure	**$9,794**
J. D. Kline WSP Filtration Replacement	**$6,623**
Lake Major Dam Replacement	**$4,693**
Ellenvale Run Retaining Wall System	**$2,878**
All Other Projects	**$10,409**
Total Capital Expenditures	**$34,397**
External Funding Received	**($4,792)**
Net Assets Under Construction	**$29,605**

Debt is an important funding source for Halifax Water's capital program. Long Term Debt is down $8.2 million from the prior year as debt repayments have been greater than new debt acquired for the capital program. The debt service ratio of 20.3% is well below the maximum 35% ratio allowed under the blanket guarantee agreement with the Halifax Municipality.

The discussion of Operating Results is based on the NSUARB Accounting and Reporting Handbook, as this is what budgets and rates are based on. The following table compares the results, excluding Other Comprehensive Income (OCI), with the budget approved by the Halifax Water Board. The final results are $9.5 million better than budget with Operating Revenue finishing higher than budget, and on par with prior year. Operating Expenses finished lower than budget, but higher than prior year. The year end results were on par with the last forecast.

Summarized Consolidated Operating Results	**Actual YTD 2018/19 '000**	Twelve Month Budget 2018/19 '000	$ Variance
Operating Revenue	**$138,413**	$135,182	$3,231
Operating Expenses	**$106,731**	$108,770	($2,039)
Operating Profit (Loss)	**$31,682**	$26,412	$5,270
Non Operating Revenue	**$1,898**	$1,006	$892
Non Operating Expenditure	**$33,190**	$36,564	($3,374)
Net Surplus (Deficit)	**$390**	($9,146)	$9,536

The NSUARB Net Profit for the year is $0.4 million, excluding accrued pension expenses of $5.2 million dollars. When accrued pension expenses are considered, the net loss is $4.8 million dollars. Accrued pension expenses are not included in Halifax Water's rates, however they are expenses associated with liabilities that the utility is required to record. The following table shows operating results for each service.

Halifax Water has a cumulative Operating Surplus of $19.4 which will be drawn down by a budgeted loss of $14 million in 2019/20. This allowed for another year with no rate increases for water, wastewater, and stormwater service.

Year to Date Operating Results by Service	**2018/19 '000**	2017/18 '000
Water	**($402)**	$1,043
Wastewater	**($3,190)**	$2,884
Stormwater	**($1,226)**	($124)
Net Surplus (Deficit)	**($4,818)**	$3,804

Revenues

Rates for services did not change this fiscal year, having last been adjusted in 2016 for water and wastewater and 2017 for stormwater. It is anticipated that an application for new rates will be submitted to the NSUARB in late 2019/20 to take effect in mid-2020.

Annual Financial Results Continued...

Operating Revenue is slightly ahead of the previous year and $3.2 million ahead of budget with Metered Sales accounting for the difference. Metered Sales consist of base and volumetric charges. Base charges are slightly below budget expectations. Volumetric revenue budgets for 2018/19 were based on a 2.5% decrease in metered consumption, however metered consumption increased by 1.4%. New growth, as well as the replacement of old water meters, that may have been under registering, contributed to this.

Operating Revenue Results			
	Actual YTD 2018/19 '000	YTD Budget 2018/19 '000	$ Variance
Consumption Revenue	**$86,244**	$81,748	$4,496
Base Charge Revenue	**$33,191**	$33,257	($67)
Wastewater Rebate	**($1,494)**	($1,252)	($242)
Metered Sales Sub-Total	**$117,941**	$113,754	$4,187
Stormwater Site Related Flow Charge	**$5,906**	$6,752	($846)
HRM Fire Protection & ROW	**$10,909**	$10,909	$0
Other Operating Revenue	**$3,657**	$3,767	($111)
Operating Revenue Total	**$138,413**	$135,182	$3,231

Although metered sales for water service were up, metered sales revenue for wastewater service is down $0.1 million (0.1%) as compared to the prior year. The lower revenue is attributable to higher Wastewater Rebates. The Wastewater Rebate is an offset to revenue. It is available to certain large customers whose water does not enter the wastewater system.

Site Related Flow Charge Stormwater Revenue was below budget the prior year. Revenue had been expected to increase from the prior year, which was also below budget. A review of the stormwater billing process is underway to ensure new customers and new development are recorded in a timely manner.

Non-Operating Revenues were higher than budget. Higher than anticipated cash balances and rising interest rates generated interest income of $1.2 million, which was more than double the budgeted amount.

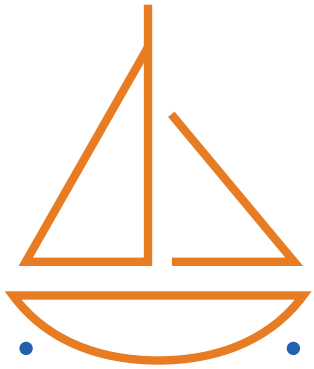
Expenses

Operating Expenses of $106.7 million are $7.3 million higher than the prior year and $2.0 million below the pro-rated budget for the year. Compared to the previous year, expense categories with the largest increases in costs are Depreciation, Water Transmission and Distribution, Administration and Pension.

Long Term Debt costs decreased $1.2 million from the prior year. Debt servicing savings are a result of new debt issues having lower interest rates than older, maturing issues. This is the third consecutive year where debt repayments have been greater than new debt issues, resulting in a reduced liability for long term debt. New debt was issued in the Municipal Finance Corporation's (MFC's) Fall Debenture in the amount of $15.0 million. The Dividend/Grant In Lieu of Taxes is paid annually to the municipality. The amount is based on the net asset value of water assets and increased this year to $5.2 million.

Activities regulated by the NSUARB (including accrued pension expense) show a loss of $6.2 million, a decline from the profit of $2.2 million profit in the prior year. Unregulated activities show a profit of $1.3 million, a slight decline in the profit of $1.6 million for the prior year. The declining profit is a result of lower revenue in several contracted services where there was a one-time income last year.

Results by Activity		
	2018/19 '000	2017/18 '000
Regulated Activities	**($6,186)**	$2,214
Unregulated Activities	**$1,368**	$1,590
Net Surplus (Deficit)	**($4,818)**	$3,804



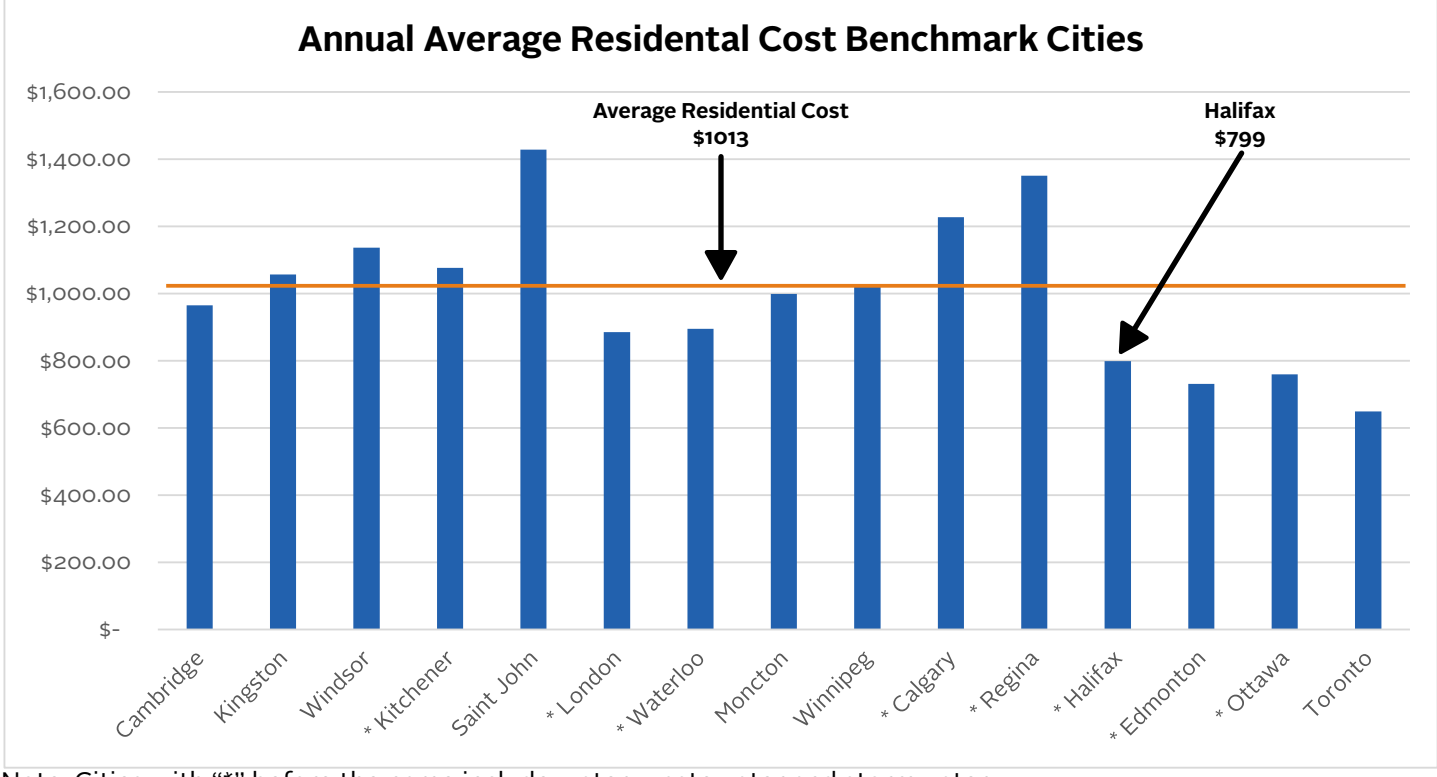
Regulatory Activity

Rates for water and wastewater service did not change this fiscal year, having last been adjusted on April 1, 2016. The rate structure for stormwater service took effect July 1, 2017. The current rates for service are shown on this page.

Summary of Rates	Effective April 1, 2016
Volumetric Charges (per m³)	
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	Effective July 1, 2017
Residential - Impervious Area	
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**

From a competitiveness perspective, Halifax Water's rates compare very favorably and continue to be among the lowest in Canada. The average residential bill for water, wastewater and stormwater service is $799 per year, compared to the average of $1013 (excluding Halifax) from benchmarked Canadian cities.



Note: Cities with "*" before the name include water, wastewater and stormwater

Annual Financial Results Continued...

Cost Containment

Cost Containment is an on-going focus for the Utility to help maintain and stabilize rates. A formal cost containment program has been in place for five years. New cost containment initiatives implemented during the 2018/19 fiscal year resulted in cost savings amounting to $0.4 million. These initiatives are available for ease of reference on the Summary Report-Cost Containment Initiatives below. Cost savings resulting from these new initiatives fall within the following categories, ranked in order of cost savings:

Human Resource Strategies	$216,000
Facilities/ Process Strategies	$92,000
Procurement Strategies	$27,000
Technology & Business Process Changes	$23,000
Reduce Paper & Printing Costs	$10,000

The cumulative impact of cost containment initiatives in 2018/19 is estimated at $5.4 million, as reported to the NSUARB in June 2019.

Halifax Water - Helping Customers

In 2018/19, Halifax Water introduced changes and new programs that benefit customers with low incomes, and also benefit the utility.

H20 (Help to Others) Program - Since 2011, Halifax Water has partnered with the Salvation Army to provide provide emergency assistance to low income customers through the H20 Program. In April 2018 the income eligibility thresholds and amount of assistance were increased. The income eligibility thresholds are $21,000 for single income and $39,000 for family income. The amount of assistance available increased to a maximum grant of $275 once in a 24 month period. Halifax Water increased communications around the program and looked at how to make the application process easier for customers. As a result of these efforts, for the first time since inception all of the available funds in the annual program were utilized, and 135 customers received assistance. This year, we will explore ways of generating more money for the fund, so we can assist more customers.

Lead Service Line Replacement Rebates – Halifax Water has a program to provide a rebate to customers of 25% of the cost of private lead service line replacements, up to a maximum of $2,500. This benefits all customers replacing lead service lines, as there is no income threshold. In 2018/19, there were 105 customers that took park in the program for a total rebate cost of $102,333. The mean rebate cost was $974, with a min and max of $143 and $2,500 respectively.

Private Lateral Replacement Assistance Program - Halifax Water can provide financing assistance to customers doing full replacement of the private portion of water or wastewater laterals, or private laterals as part of a new deep stormwater installation in areas where none previously existed. The program is designed to provide a financing option for customers who do not have other more favourable means to pay for or finance their private lateral replacement. This program came into effect May 2018. Only one customer has utilized the program to date.

SERVICE EXCELLENCE

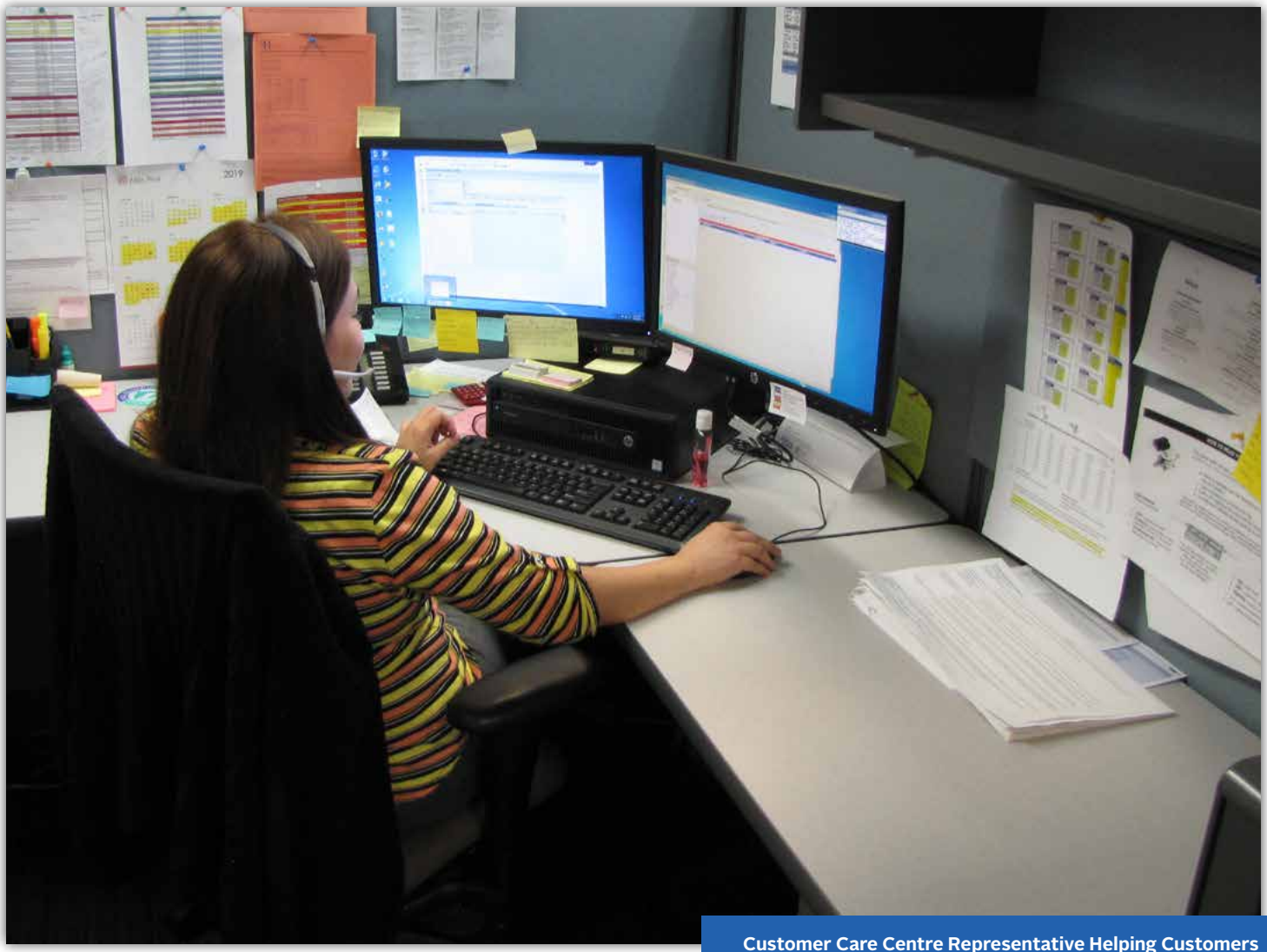
Customer Care Centre

2018/19 was the second complete fiscal year operating as a full service Customer Care Centre, as opposed to a billing and account contact centre. The transition from a historical billing and account contact centre began in 2016 and involved implementing a Customer Relationship Management System (CRM), integration with a work order system for operational service requests, and centralization of wastewater and stormwater calls formerly handled by HRM's 311 centre and water operations staff.

2018/19 Call Centre Performance					
Total Calls Answered	**Average Number of Calls Daily**	**Abandonment Rate**	**Average Speed of Answer**	**Busiest Day of the Year**	**Busiest Month of the Year**
74,519	330	11%	84 seconds	January 23, 2019 593 calls	January 2019 8035 calls

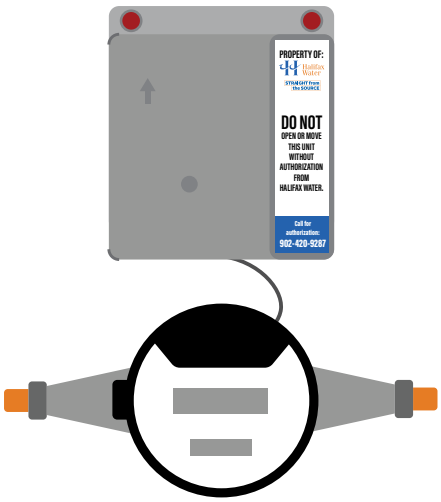
Customer Care Centre performance in 2018/19 achieved performance targets for part of the year, but fell short from spring to early-summer 2019 primarily due to under resourcing brought on by attraction and retention issues.

Customers also contact Halifax Water using online service requests and through a generic email: customercare@halifaxwater.ca. There is a steady growth in email volumes. The email volume in 2018/19 was 8,226.



Customer Care Centre Representative Helping Customers

Advanced Metering Infrastructure



Graphic of an AMI Meter & Transmitter

In 2016/17 Halifax Water received NSUARB approval to proceed with an Advanced Meter Infrastructure (AMI) project. By the end of 2018/19, 50,000 AMI meters were installed. The project is scheduled to be complete in November of 2019. AMI is a system whereby, in lieu of meter readers walking, or driving routes to read meters with radio devices, a fixed network of radio devices is established over the service area to read meters on a much more frequent basis (typically hourly).

CUSTOMER CONNECT

AMI Project Name & Logo

In addition to streamlining the meter reading process and reducing its cost, AMI promises many features that will improve the level of service Halifax Water can offer in future to its customers. These include:

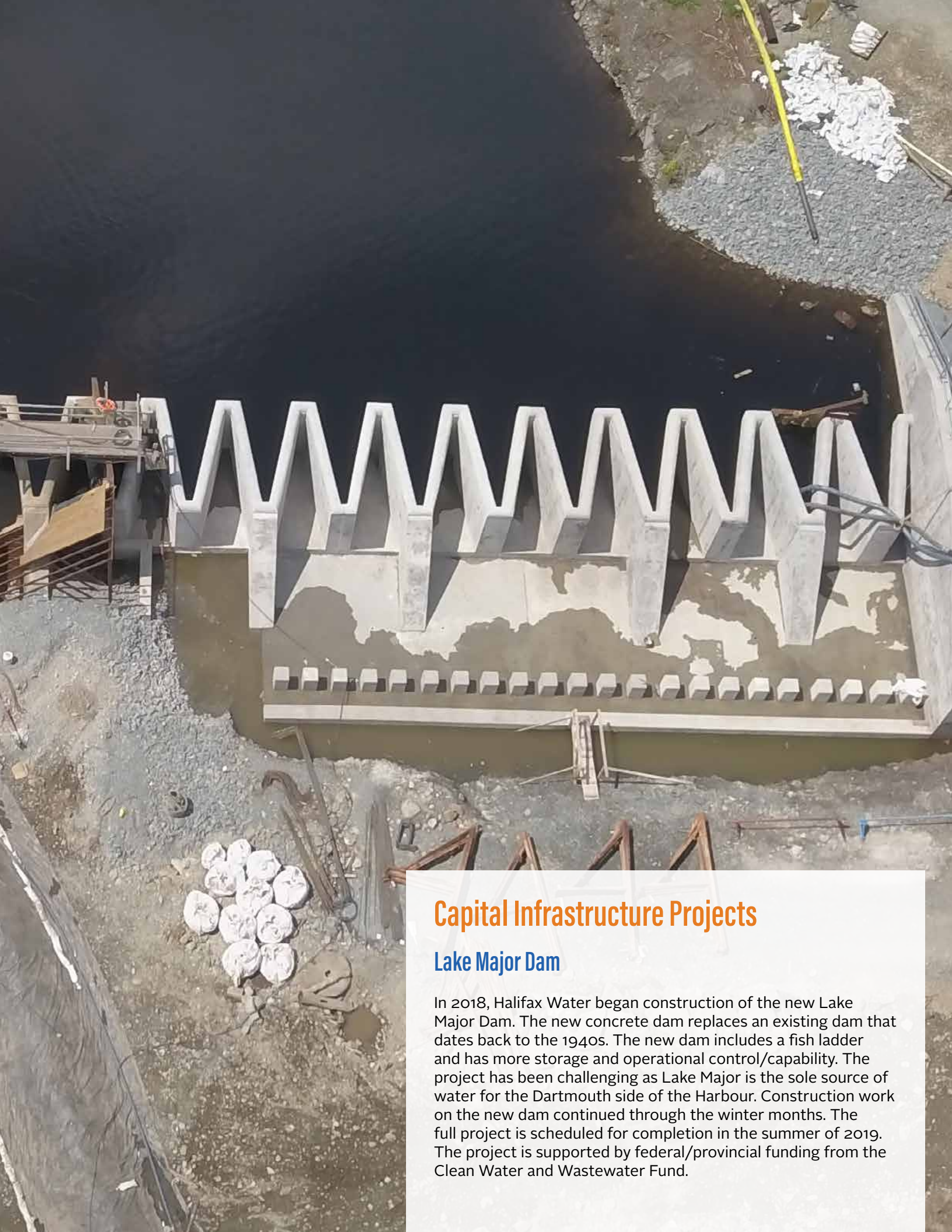
- The ability to offer monthly billing to residential and small commercial customers making it easier for customers to manage cash flow and automated payments. Large institutional, commercial and industrial customers are currently billed on a monthly basis.
- Halifax Water will be able to alert customers to high consumption due to things like plumbing leaks, almost as they happen, reducing billing disputes and high bill amounts.
- If they choose, customers will have the ability to manage their water consumption through a web portal in real time and see the effect of any conservation measures they take.

AMI will provide much more data about customer consumption and distribution system operations. This may enable earlier identification of distribution system leaks. Overall it will improve the customer focus of the organization by providing the ability to identify and rectify customer issues proactively, rather than after the fact upon the customers' receipt of a high bill. This will result in reduced costs for billing and collection, and reduce the need for the high cost activity of sending technicians to customer homes.

Modernizing Communication & Interaction with Customers

In 2018/19, Halifax Water completed a project to build a new website, designed with customers in mind. Customer feedback and a customer focus group helped shape the new website which was launched April 2019. The next phase of modernization is development of a customer portal that will enable customers to view their consumption data and account details, have access to some self-serve transactions and service requests. Halifax Water's utilization of social media has also been steadily increasing through Twitter and Facebook.

EFFECTIVE ASSET MANAGEMENT



Capital Infrastructure Projects

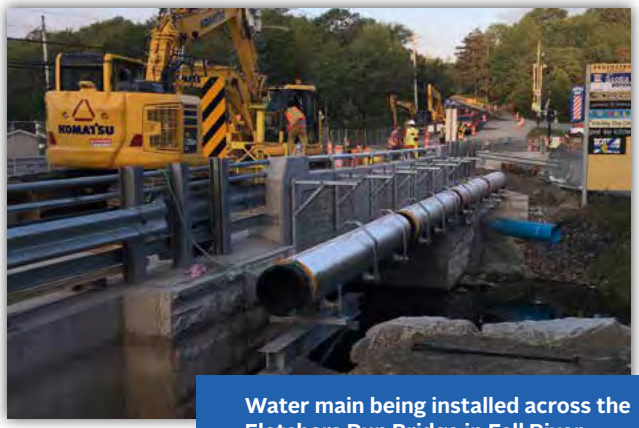
Lake Major Dam

In 2018, Halifax Water began construction of the new Lake Major Dam. The new concrete dam replaces an existing dam that dates back to the 1940s. The new dam includes a fish ladder and has more storage and operational control/capability. The project has been challenging as Lake Major is the sole source of water for the Dartmouth side of the Harbour. Construction work on the new dam continued through the winter months. The full project is scheduled for completion in the summer of 2019. The project is supported by federal/provincial funding from the Clean Water and Wastewater Fund.

Capital Infrastructure Projects Continued...

Fall River Servicing

In partnership with, and on behalf of HRM, Halifax Water was the lead agency for the extension of water service to the community of Fall River. The work involved the installation of approximately 6.9 kilometers of water mains, at a total project cost of $10.2 million to service residents, schools, and businesses along Fall River Road, sections of Lockview Road, McPherson Road, Ingram Drive and Highway #2. The project was substantially completed and put in to service in December 2018. The project was supported by funding from the Federal and Provincial governments under the Clean Water and Wastewater Fund.



Water main being installed across the Fletchers Run Bridge in Fall River

New J. D. Kline Blower Equipment Building

J. D. Kline WSP Filter & Underdrain Replacement

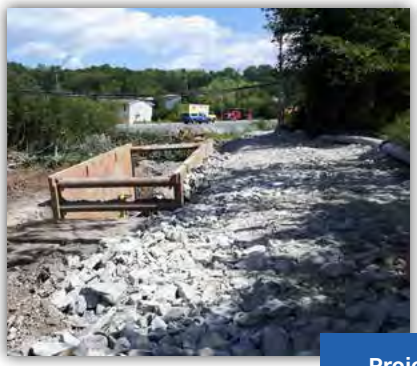
Construction to replace the underdrains and filter media for all eight filters at the J. D. Kline (Pockwock) Water Supply Plant began in early 2018. The project has funding support from the federal/provincial Clean Water and Wastewater Fund. The project also includes upgrading the filter system to accommodate air scour in the backwash process. The project is on track for full completion by the end of 2019.

Glendale Drive to Sackville Trunk Sewer Wastewater System Upgrade

The Glendale Drive project is a good example of collaboration with various stakeholders.

The project upsized a section from Glendale Drive to the Bedford/Sackville Trunk Sewer, in Lower Sackville, to improve the hydraulics of the system.

This work consisted of the replacement of approximately 275m of pipe from the Bedford/ Sackville Trunk Sewer to the intersection of Glendale Drive and Rankin Drive, with 750mm diameter pipe. The project also widened the existing HRM easement.



Project work on the Sackville Greenway Trail

The project scope also included crossing of the adjacent wetlands of Rankin Brook and the Little Sackville River, which border this project. Communicating with the Sackville Rivers Association and related stakeholders throughout was an important part of this undertaking.

Once Halifax Water's work was complete, HRM concluded the section of the Sackville Greenway Trail pictured above.

Aerotech Wastewater Treatment Facility Upgrade & Expansion - Update

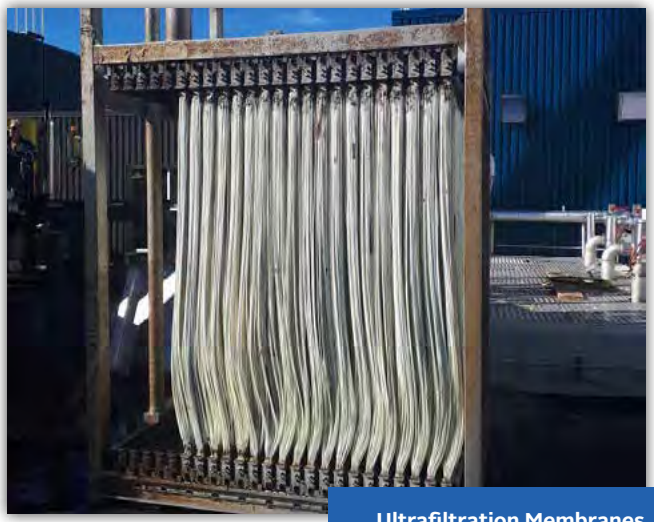
Aerotech WWTF

Bioreactor Tanks

The expansion and upgrade of the Aerotech WWTF focused on biological nutrient removal (BNR), utilizing ultrafiltration membrane bioreactor treatment technology. The facility supports the long-term environmental and growth plans for the region encompassing the Halifax Stanfield International Airport and Aerotech Business Park. The project commenced in 2012 with a focus on environmental sustainability, energy efficiency, asset renewal, life cycle cost, and operational automation for process control. Construction commenced in September 2016 and achieved substantial completion on August 23rd, 2019.

Aerotech WWTF has an average daily flow of 3.0 million litres per day (MLD) and a peak design flow capacity of 6.0 MLD. The facility is Halifax Water's most technically advanced wastewater treatment achieving tertiary effluent quality.

Treatment performance is continuously monitored to ensure the facility meets the stringent effluent nutrient requirements of it's permit. The facility has surpassed treatment performance objectives.



Ultrafiltration Membranes

Capital Infrastructure Projects Continued...

Water, Wastewater and Stormwater projects Integrated with HRM Street Program

Halifax Water proactively replaces and rehabilitates water, wastewater and stormwater infrastructure in conjunction with municipal street reconstruction projects. Halifax Water invested approximately $7.7 M to upgrade infrastructure systems within this program in 2018/19.

Wastewater Mainline Trenchless Lining Projects

Wastewater Main Lining Work on Rosedale Avenue, Fairview

In 2018, Halifax Water conducted two separate sewer lining projects. These projects consisted of the trenchless and non-disruptive construction application of cured-in-place pipe (CIPP) technology to rehabilitate aging wastewater, and combined (wastewater and stormwater) sewer mains.

Phase 1 included the rehabilitation of mainline sewers at 11 street sites located within peninsular Halifax. The total lined was approximately 3,650 meters.

Phase 2 rehabilitated wastewater sewers at 19 street sites in the Fairview area. The total lined over this phase was approximately 11,325 meters. The Phase 2 lining provided the added benefit of sealing the existing sewer pipe and reducing storm and groundwater infiltration.

The lining work included significant communications efforts with stakeholders and area residents throughout all stages of the work. The lining construction began in late July and wrapped up by late October. The final value for Phase 1 was $1.3 M and Phase 2 was $2.3 M.

Wastewater Lateral Lining Program

This program included the trenchless and non-disruptive construction application of cured-in-place pipe (CIPP) technology for the rehabilitation of aging and leaky wastewater/sewer service laterals in the Leiblin Park and the Stuart Harris Drive sewersheds. 125 laterals we lined in Leiblin Park and 135 in the Stuart Harris Drive area.

Lining began in June and wrapped up late in the year, at a cost of approximately $1.8 M.

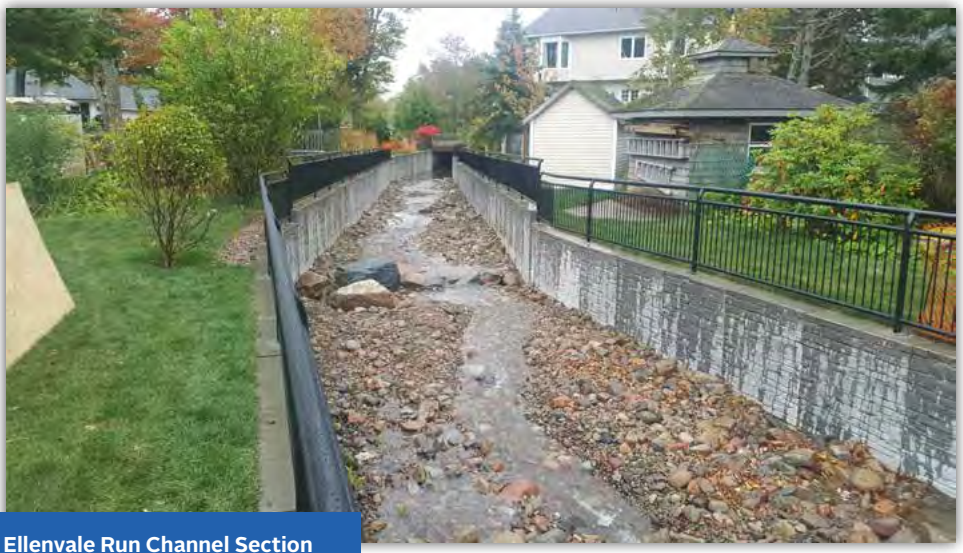
Wastewater Lateral Lining Work on Stuart Harris Drive, Dartmouth

Ellenvale Run Retaining Wall

Ellenvale Run conveys stormwater from Lemont Lake to Morris Lake and is a major stormwater drainage corridor. 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 varies along the channel. In some areas the walls are in relatively good condition, while in others the walls are failing and temporary bracing was installed to prevent them from falling into the stream.

In an effort to stabilize the channel walls and 'naturalize' the channel, the section of Ellenvale Run between Main Street and Portland Street underwent a major rehabilitation in 2018. Along with stabilizing the channel walls, the project sought to reestablish or improve natural habitat through the use of energy dissipation pools, natural pool and riffle sequencing and natural stone on the bottom of the channel liner. This reduces the speed of stormwater flows, creates pools and meanders, and helps improve fish passage.

Section of channel being placed

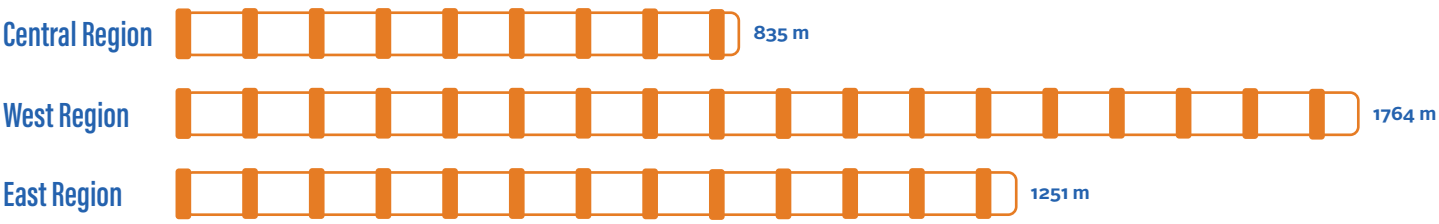


Ellenvale Run Channel Section

In order to complete the work, Halifax Water required permits from the provincial Department of Environment and Federal Department of Fisheries and Oceans. While construction was taking place, any fish that made their way to the channel work site were collected using dip nets at one end of the project work zone, placed in buckets and released at the other end of the work zone. The fish checks took place daily. Pickerel, trout, and alewife are species that use the waterway, but eels were the main species encountered during construction.

For 2019, further enhancement to additional sections of the Ellenvale Run will take place.

Water Main Renewals 2018/19



2018 Water Main Renewals = 3.85 km
2017 Water Main Renewals = 8.02 km

Asset Management

Key achievements in Asset Management (AM) this year included development of a Climate Change Framework; progress on the Infrastructure Master Plan; initiation of the Integrated Resource Plan (IRP) Update; rebuilding the wastewater hydraulic model; updating the Asset Management Plan (AMP) for fiscal 2018; and completing year three of the corporate flow monitoring and the sewer inspection programs.

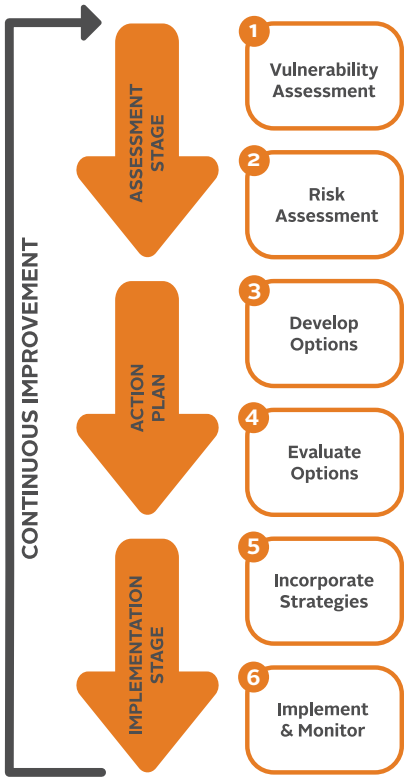
Climate Change Management Framework

Through the Infrastructure Master Planning project, Halifax Water looked closely at climate change and how to adapt and prepare for the future. There were two components to the work:

- Development of a "Vulnerability to Climate Change" assessment framework
- Climate change considerations for design Standards and Long Term Planning

The Climate Change Management Framework was developed as a guideline to assess our infrastructure assets' vulnerability to climate change, prioritize those vulnerabilities based on risks, develop adaptation strategies to reduce the risk, and implement those strategies. As illustrated on this page, the framework has three stages – Assessment, Action Plan and Implementation. The framework shows how an asset progresses from being assessed against the impacts of climate change to where an adaptation strategy has been implemented.

Halifax Water will also be updating the Design and Construction Specifications to account for climate change and sea level rise boundary.



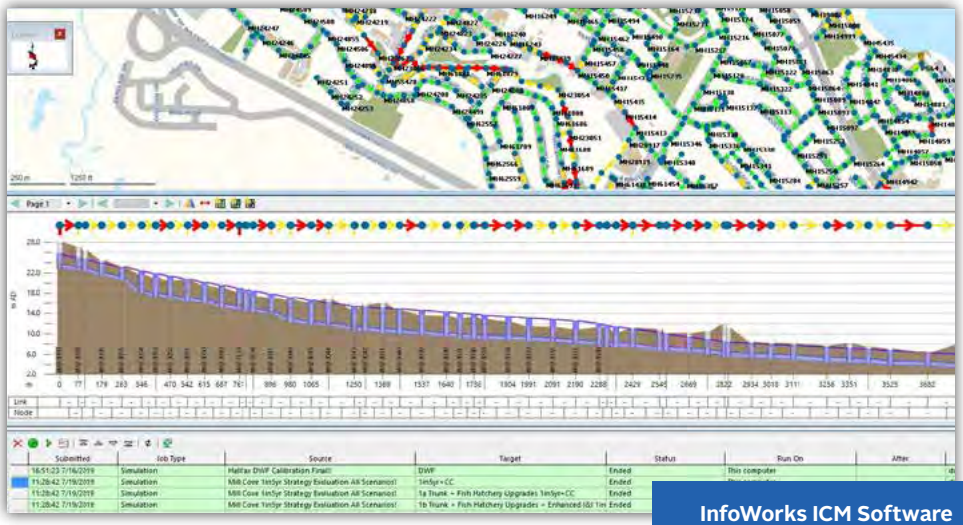
Climate Change Management Framework

Regional System Modelling - Wastewater

Through the Infrastructure Master Plan, a new wastewater model was created using the new InfoWorks Integrated Catchment Modelling (ICM) software. The model development began with the creation of new wastewater modelling guidelines.

The new wastewater model is an "all-pipe" model closely linked with the corporate Geographic Information System (GIS) and Supervisory Control And Data Acquisition (SCADA) systems. All pipes and manholes in the wastewater and combined sanitary systems are represented in the model.

The model is currently being used in the development of the Infrastructure Master Plan. The Asset Management team will be conducting continuous updates and annual calibration of these regional models.



InfoWorks ICM Software

2018/19 Asset Management Plans

With official sign-off of the 2017/18 Asset Management Plan (AMP), the Asset Management (AM) Team had the approval to proceed with establishing the Asset Management Implementation Teams (AMITs). As a pilot, AMITs were established for Water Transmission Mains, Wastewater Forcemains, and Stormwater Cross Culverts.

Transmission Mains – the Transmission Mains AMIT worked to improve data in GIS, reconciling differences between data available in GIS and sources maintained historically by Engineering. The AMIT estimated service lives based on pipe material and other factors to determine a calculated condition and suggested replacement date.

Forcemains – Using pipe material as the primary criteria, the Forcemains AMIT developed an improved methodology to calculate condition and suggested replacement dates.

Cross Culverts – the Cross Culverts AMIT reviewed and updated estimated service lives based on asset material. Work collecting data during site visits increased the inventory by 186 cross culverts.

A summary of the state of good repair by infrastructure service area is provided below.

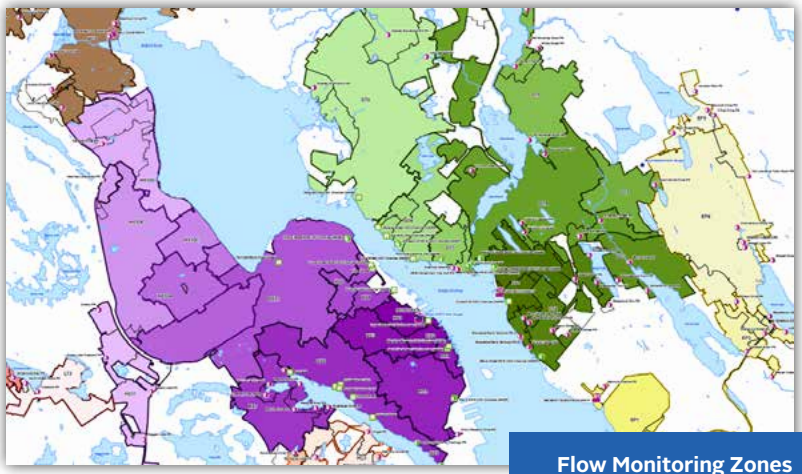
Asset Management Plan 2018/19 Summary

Asset Management Continued...

Corporate Flow Monitoring Program

The Corporate Flow Monitoring Program deployed 40 new flow monitors this year. There are a total of 102 active flow monitors in our system. This program provides valuable information used in advance of specific capital projects, to calibrate the hydraulic models, and enable monitoring before, during and after wet weather related projects.

Typical Field Set Up for Monitor Installations



Flow Monitoring Zones

Sewer Inspection Program

Year three of the sewer inspection program saw 60,650 metres of sewers, and 706 structures (307 manholes and 399 catchbasins) were inspected in 2018/19. Staff have worked to integrate the inspection software with Halifax Water's GIS to optimize the process for uploading data into the corporate GIS. Building on the tools developed in earlier years, staff have continued to use a variety of GIS tools to simplify how inspection outcomes and information are shared with the requestor or other users. Initial exploration of the possibility of moving to ESRI's CCTV Manager is underway. CCTV Manager will further enhance visualization of CCTV data and enable simplified updating of key attribute data (pipe material, size, condition) with information collected directly from the inspections.

Wet Weather Findings Showing Stormwater Infiltration at Pipe Joints

Wet Weather Findings Showing Stormwater Infiltration at Pipe Joints

In 2018/19, the Sewer Inspection Program focused mainly on HRM-HW integrated projects and the Wet Weather Management Program.

Energy Management

Energy use in municipal water and wastewater/stormwater treatment facilities and collection systems typically consume over 30% of Municipal energy usage and over 4% of the total National energy usage (US Data). With this in mind, Halifax Water has continued its efforts to improve its energy footprint.

- The Energy Management Plan was updated to identify specific annual energy reduction targets and activities to be completed in 2018/19.

- Projects and initiatives completed in 2018/19 resulted in over 2,873,000 kWh_e in annual energy savings, over $324,000 in cost savings, and over 1,850 Tonnes CO_{2e} in direct and indirect green house gas (GHG) reductions. Completed projects and annual initiatives include:

Completed Energy Management Capital Projects & Annual Initiatives					
Service Area	**Facility**	**Project/Initiative**	**Annual Savings**	**Energy Reduction (kWh_e)**	**CO_{2e} Reduction (tonnes/yr)**
Capital Project Completions					
Water	J. D. Kline WSP	Boiler Replacement	$3,800	47,448	12
Wastewater	Herring Cove WWTF	Fan Belt Replacements - V Belt vs. Timing Belt	$13,486	132,000	86
Wastewater	Halifax WWTF	Fan Belt Replacements - V Belt vs. Timing Belt	$32,090	315,000	205
Wastewater	Halifax WWTF	New Air Compressors	$3,300	30,000	20
System Wide	Various Facilities	NSPI Meter Read Improvements (Credits)	$44,922	-	-
Annual Operations Initiatives					
Wastewater	*HHSPs & EPWWTF	Ultraviolet Shutdown (April & November - March 2019)	$172,767	1,865,696	1,216
Wastewater	Halifax WWTF	Odour Control System Bypass (April & November - March 2019)	$43,777	390,866	255
Wastewater	Herring Cove WWTF	Odour Control System Bypass (November - April 2019)	$10,686	92,524	60
*Halifax Harbour Solutions Plants & Eastern Passage Wastewater Treatment Facility			**$324,828**	**2,873,534**	**1,855**

- Access to Nova Scotia Power Inc. (NSPI) meters to improve meter reading activities, along with continued use of the Energy Management Information System, continue to improve the accuracy of energy data for the utility.

- Design stage development of the Cogswell District Energy System (DES) continued. The 100% detailed design of the distribution piping systems (DPS), along with a by-law review of similar Canadian systems, was completed in 2018/19. The DES business case has been updated to reflect changes from the 100% DPS design. With an increase in the size of the proposed buildings in the Cogswell area, the business case shows a marked improvement over earlier preliminary stage versions. Next steps include completing the stakeholder information package to facilitate the promotion of the project to the local community and stakeholders, DES by-law development in conjunction with HRM, and completing detailed designs for the energy centre, energy transfer stations, and the development of the required building specifications.

- A continued focus on early stage involvement in infrastructure projects has also brought a focus on energy efficiency and sustainability at the design stage, resulting in efficiency improvements implemented during construction. Current projects include the Mill Cove WWTF upgrade project.

Energy Management Continued...

- 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.

2018/19 saw an overall utility annual energy increase of +1.6%, an aggregate increase in water and wastewater flows of +2.4%, and an aggregate increase in GHG emissions of +1.2%. Direct GHG emissions (i.e. fossil fuels used for heating) were 1,976 tonnes CO_{2e}, while indirect emissions (i.e. emissions from electricity use via NSPI) were 38,703 tonnes CO_{2e}. A focus on further energy efficiency and operational improvements to existing infrastructure and on completing energy audits in the rest of our facilities in the coming years will allow Halifax Water to continue to build on these results.

New, efficient air compressors installed at the Halifax WWTF

Engineering Information

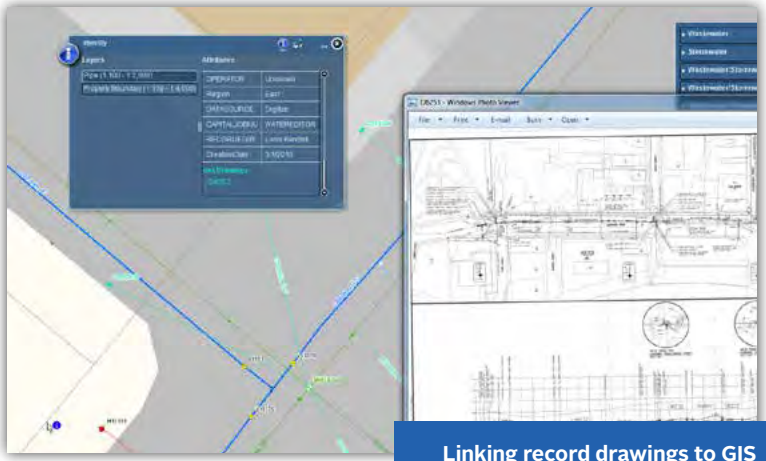
This past year saw many key achievements in the Engineering Information area that provide critical support to a variety of corporate solutions relating to infrastructure data and related services including:

- Completion of the first year of hosting and administering GIS and Cityworks including responding to approximately 1000 service and incident requests
- Completion of approximately 850 drawing, data and mapping requests for internal and external customers
- Enhancement of FORMS application to support Water Quality Lead replacement program
- Completion of CMMS Phase 3: onboarding of Facilities to the Cityworks platform
- Numerous data gap improvements to support corporate initiatives such as Asset Management Plan development
- Initiation of a service lateral record data entry project
- Improvements to record drawing links in GIS and drawing management processes
- Growth in Web GIS capabilities with the development and release of several additional Web GIS apps
- Conversion of GIS data's geodetic datum from ATS77 to NAD83 (CSRS)2010 for horizontal / CGVD2013 for vertical

Drawings, Data & Datum

Along with data improvement by completing both spatial (pipe network) and attribute gaps, the EI team has also been working to improve drawing access. The ultimate goal is to have all record drawings linked to corresponding infrastructure through GIS. The database model and tables to accommodate drawing linking. Initial research has been done on high priority infrastructure like transmission mains, force mains and facilities. Future projects will see all record drawings linked to GIS. A new index application is also in the works.

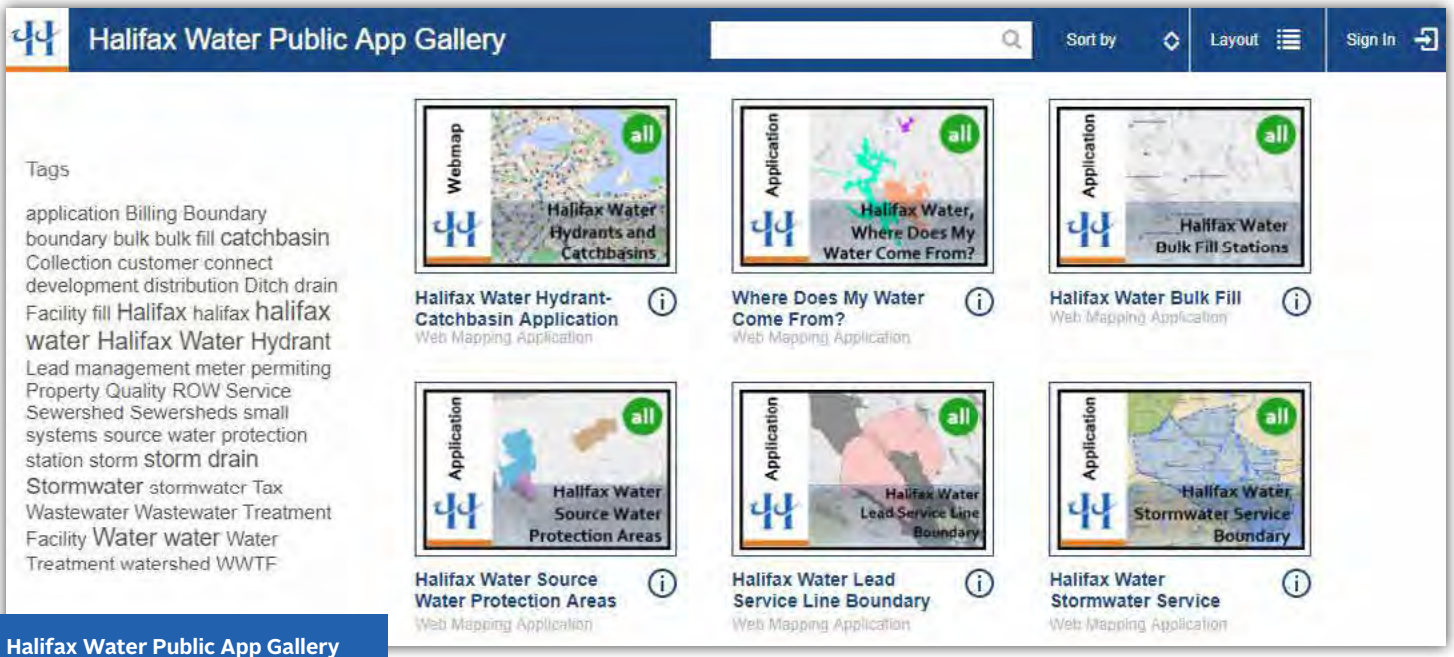
Another significant data improvement in 2018/19 was the conversion of our GIS data from the ATS77 datum to NAD83 datum as recommended by province of NS.



Linking record drawings to GIS

Web GIS Growth

Web GIS mapping applications continued to grow within the organization both for internal business unit use and also for use by our communication team when providing project specific information to the public.



Halifax Water Public App Gallery

An internal application developed and deployed in 2018/19 is the Halifax Water Mailing List Generator. Staff use this application to generate a mailing list for selected properties when service notification communication is required.

Halifax Water Mailing List Generator

Looking Ahead for GIS

The 2018/19 year saw the initiation of a GIS/Cityworks Upgrade Project including the development of a new Web GIS application to replace the legacy GIS Dashboard. The upgrades will include improvements to the GIS and Cityworks environments. The installation and configuration of the Portal for ArcGIS will allow for greater flexibility in the areas of Web GIS application deployment, data security and named user flexibility.

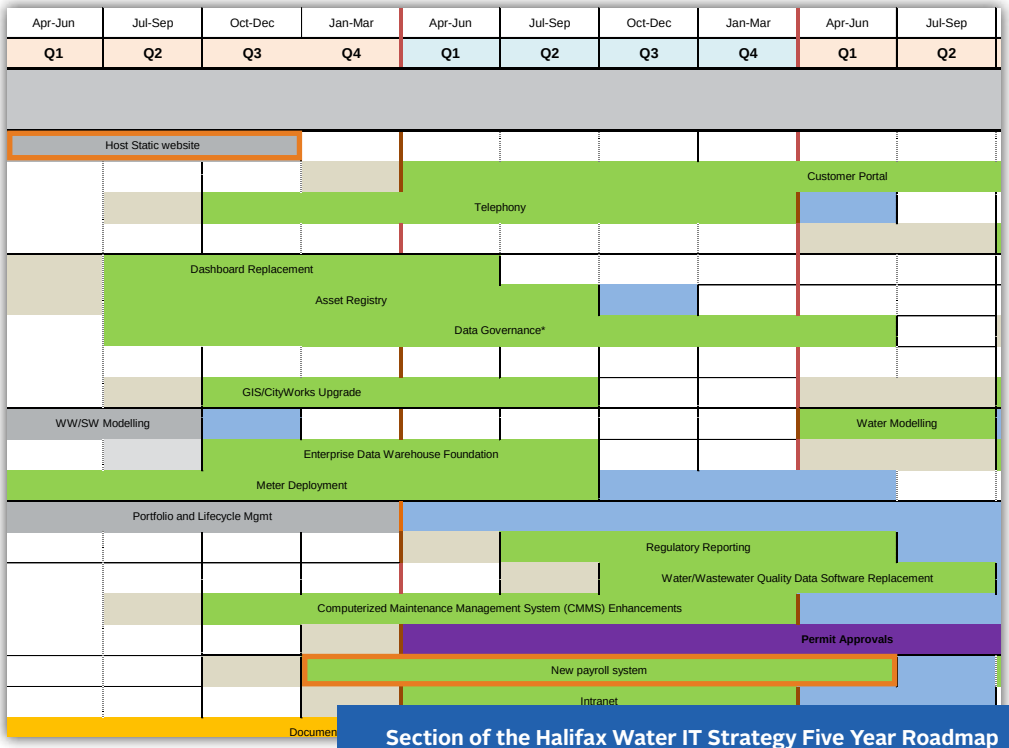
Data improvements will continue to be a theme for 2019/20 with sewer service record data entry continuing, the build of our large customer laterals ongoing and improvements to record drawing linking in GIS.

Information Technology

In 2019, the Information Services and Engineering Information sections worked to update the Information Technology Strategic Roadmap. The IT Strategy and Roadmap guide activities related to Information Technology over the next five years. It is based on a clear strategic vision for how Halifax Water wants to position and use information technology within the context of its business and utility operations.

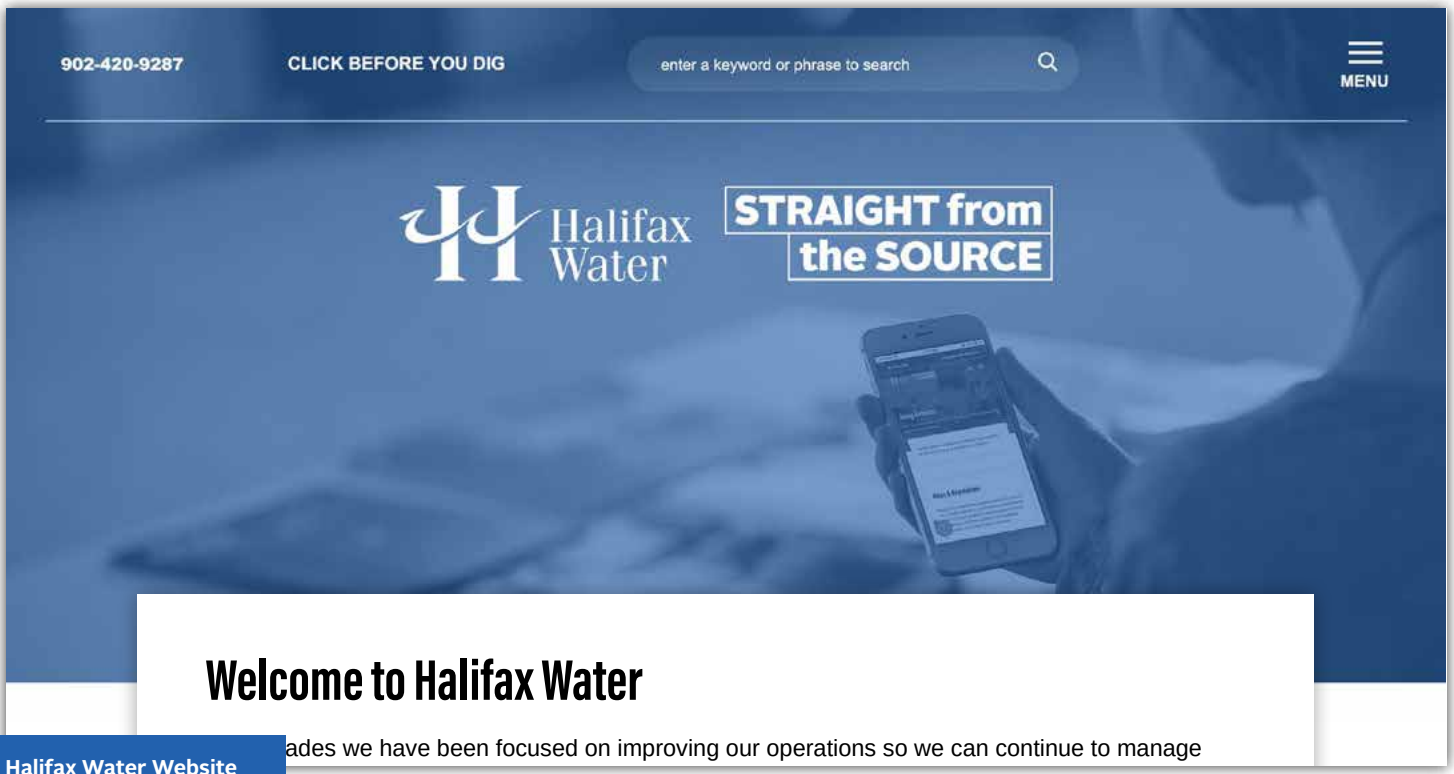
The Roadmap, a portion of which is shown here, shows a schedule of projects aligned with the organization's strategic and tactical goals.

In the 2018/19 fiscal year seven projects were completed. Two projects of particular note are:



Section of the Halifax Water IT Strategy Five Year Roadmap

New Halifax Water Website



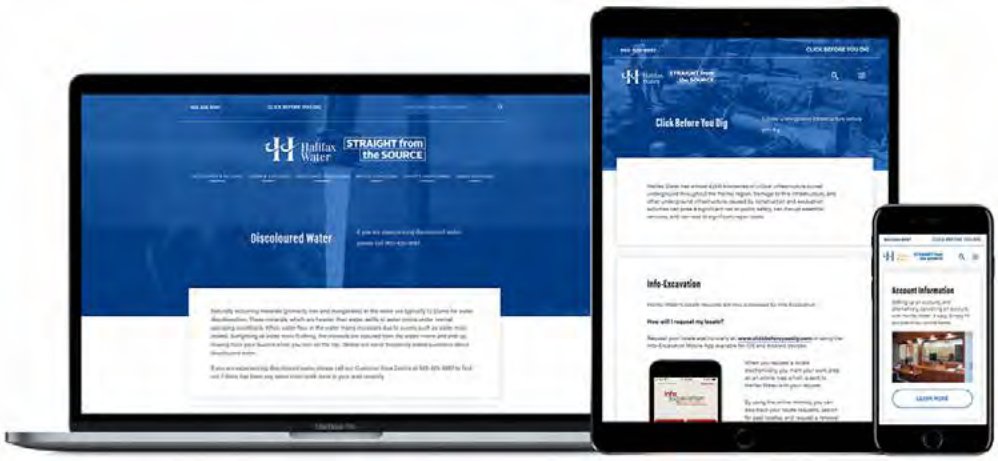
Halifax Water Website

A new Halifax Water website was rolled out (www.halifaxwater.ca) with a new design, layout and easy to use navigation. The website was created to be very customer centric with a design that will help keep customers informed and up-to-date with what is going on at Halifax Water.

The new design came from feedback provided by Halifax Water customers. Halifax Water distributed an online survey and held several in-person focus groups.

Through the survey and focus group sessions customers made it clear what they wanted and needed:

Focus Group Wants/Needs	
Customer Want/Need	**How it was Achieved**
An easy, clear way to contact Halifax Water	• Halifax Water's Customer Care Centre phone number is displayed in the header at all times. • Future introduction of Contact Us forms at the bottom of every page.
Easy, fillable online forms	• Currently there are five new online forms with more being rolled out in the next two years.
Timely and up-to-date information on what's happening (water main breaks, hydrant flushing, road closures, etc)	• A new 'What's Happening' page has been added to the site. • Home page has been updated to include a section for 'Notices', 'What you need to know' and Twitter feed.
Alerts on major news items like water restrictions	• New Alert functionality has been added to the site.
Information on major infrastructure projects and the impact on customers	• A new section on 'Major Projects' has been added to the site.
Easy, intuitive navigation	• Navigation is no longer based on internal business unit functionality, but rather customer focused wants and needs.
Mobile-friendly site	• The new site was designed using the Mobile-First Approach. The result is a website that automatically adjusts based on the size of the user's screen.



The new Halifax Water website is managed and updated by Halifax Water staff.

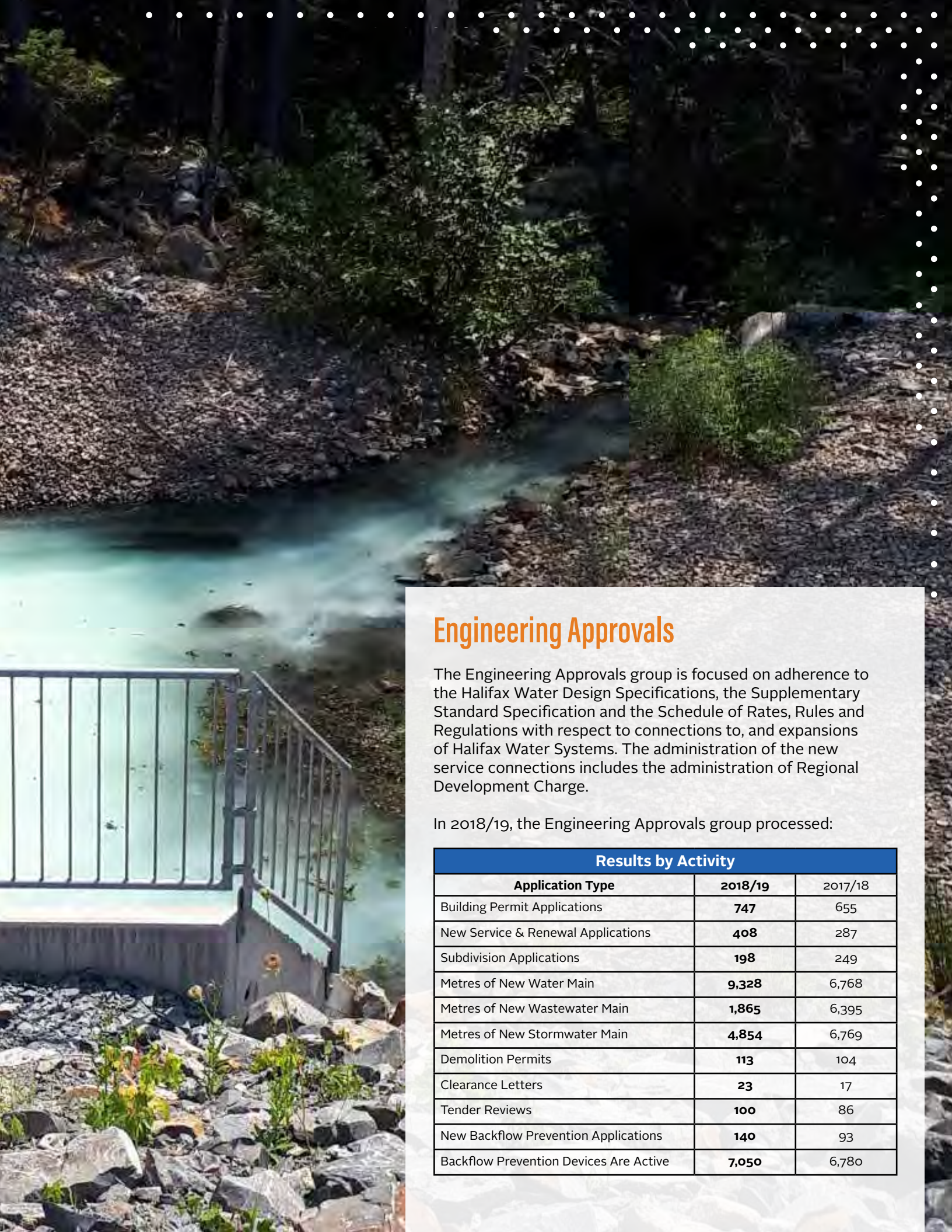
The next release of the website, expected in 2021, will provide customers more control over their water accounts, and more self-service access to items such as consumption information, basic billing information and monthly billing.

New Payroll System

A Payroll Project was initiated when it became apparent that the current system is labour intensive and outdated.

The project team issued a request for proposal, assessed the responses, and selected Telus to provide the new payroll system. Telus was chosen based on a combination of specific Halifax Water requirements, available features and price.

REGULATORY COMPLIANCE



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 Halifax Water Systems. The administration of the new service connections includes the administration of Regional Development Charge.

In 2018/19, the Engineering Approvals group processed:

Results by Activity		
Application Type	**2018/19**	2017/18
Building Permit Applications	**747**	655
New Service & Renewal Applications	**408**	287
Subdivision Applications	**198**	249
Metres of New Water Main	**9,328**	6,768
Metres of New Wastewater Main	**1,865**	6,395
Metres of New Stormwater Main	**4,854**	6,769
Demolition Permits	**113**	104
Clearance Letters	**23**	17
Tender Reviews	**100**	86
New Backflow Prevention Applications	**140**	93
Backflow Prevention Devices Are Active	**7,050**	6,780

Regional Development Charge

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

Using this information, a charge per new residential dwelling unit or non-residential floor area was created. Halifax Water committed to regular five-year reviews of the Regional Development Charge and to identify interim changes and impacts based on new and best information that may result in a 15% +/- change to the RDC. Halifax Water is completing the infrastructure master plans for the east and central regions in the summer of 2019 to compliment the previously completed west region infrastructure plan.

The regional infrastructure required to facilitate growth identified from these three plans will feed into the development of an updated RDC. Stakeholder consultation will commence in June of 2019, with a target of having a proposed charge to the Nova Scotia Utility and Review Board for a hearing in February 2020.

Environmental Engineering

The Environmental Engineering group oversees the Pollution Prevention (P2) Program and Inflow & Infiltration (I&I) Reduction Program. The purpose of these two programs is to regulate the quantity and quality of discharge from customer connections to the wastewater and stormwater system. 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.

The disposal of "flushable wipes" and fat, oil and grease (FOG) into the wastewater system causes blockages in pipes, failure of pumps and impairs the treatment process. The result is wastewater back-ups and pump failures with possible overflows. The P2 Program began using operational data from CityWorks to identify chronic problem locations and focus education and enforcement efforts on those areas first. Staff have developed a systematic approach to completing inspections in areas that are predominantly commercial/ industrial.

Halifax Water P2 Van used for Inspections

Pollution Prevention is also responsible for regulating the resolution of situations where a private wastewater system was inadvertently connected to a stormwater system. Four of these wastewater to stormwater cross connections we resolved over the past year. Staff also investigates the origin of spills or contaminants into the wastewater and stormwater systems.

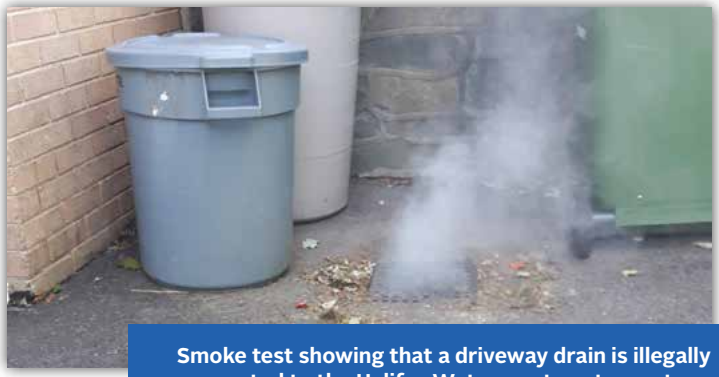
Illegal disposal of paint into the stormwater system

The I&I Reduction Program identifies and resolves private property connections where stormwater is entering the wastewater system. Staff work closely with the Wet Weather Management Program to reduce the amount of stormwater entering the wastewater system.

Smoke test showing that a downspout is illegally connected to the Halifax Water wastewater system

Manhole Surcharge (Overflowing)

The I&I team inspected over 121 single family residential properties and smoke tested 2,600 m of wastewater mains in Uplands Park, Beaver Crescent, Wanda Lane, Downey Road and Fairview/Clayton Park area last year. A number of new approaches to communicating with residential customers about I&I Reduction, such as open houses and more reader friendly written communication have been well received by customers.



Smoke test showing that a driveway drain is illegally connected to the Halifax Water wastewater system

Environmental Management Systems

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 engage employees in these operational activities. The EMS program can be audited against ISO 14001 standards, and if found to comply, receives a Certification through ISO. The ISO standard has recently changed from 2004 version to a 2015 version. A greater focus has been placed on organizational leadership and identification of internal and external risks and associated influences.

Staff have successfully obtained certification for the following facilities: J. D. Kline WSP, Lake Major WSP, Bennery Lake WSP and the Herring Cove WWTF under the new audit. An external audit for the Dartmouth WWTF took place in May 2019 to bring it into the ISO 14001 standard.

This coming year staff will be developing a plan to implement an EMS system corporately.

Wastewater Treatment Facility Compliance

Wastewater treatment facilities in Nova Scotia are regulated by Nova Scotia Environment. They set effluent discharge limits for all wastewater facilities. The limits define maximum concentrations of parameters such as Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (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 a number of optimization projects that involve reduction of wet weather influences, equipment upgrades and process enhancements, which have resulted in improved compliance results.

Compliance for the harbour wastewater treatment facilities are measured on monthly averages. There has been a significant improvement with the compliance at the five harbour facilities with three, Herring Cove, Eastern Passage and Mill Cove, being fully complaint for the year and Halifax having only one non-compliant result for the year.

Wastewater Treatment Facility Compliance Summary

April 2018 - March 2019

Wastewater Treatment Facility	$CBOD_5$	TSS	E. Coli.	Phosphorus		Ammonia		pH	Dissolved Oxygen	Total Chlorine	Toxicity
				S	W	S	W				
Halifax	42	26	4662	N/A		N/A		7	N/A	N/A	Toxic
Herring Cove	27	16	55	N/A		N/A		7	N/A	N/A	Non-Toxic
Dartmouth	41	35	7745	N/A		N/A		7	N/A	N/A	Toxic
Eastern Passage	7	7	55	N/A		N/A		7	N/A	N/A	Non-Toxic
Mill Cove	12	16	16	N/A		N/A		6.6	N/A	N/A	Non-Toxic
Aerotech	5	2	12	0.6		0.4	3.9	7	7.8	N/A	Non-Toxic
Frame	6	1	13	N/A		N/A		7	N/A	N/A	N/A
Lakeside - Timberlea	6	15	16	1	2	1	4	7	N/A	0.10	Non-Toxic
Lockview - MacPherson	5	8	37	0.4		1		7	N/A	N/A	N/A
Middle Musquodoboit	8	7	45	N/A		N/A		8	N/A	N/A	N/A
North Preston	7	13	42	0.4		0.7		7	N/A	N/A	N/A
Springfield	8	23	47	N/A		N/A		7	N/A	N/A	Non-Toxic
Steeves (Wellington)	4	3	10	0.13		0.05		7.3	N/A	N/A	N/A
Uplands Park	9	10	99	N/A		N/A		7	N/A	N/A	N/A
Weighted Average	13	13	918	N/A		N/A		7.0	8	0.1	

Legend	
	Specific parameter limit achieved
	Specific parameter limit not achieved

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.
Fecal Coliform / E. Coli: Bacteria which are present in the treated sewage.
Phosphorus (phosphate): A plant nutrient which can impact water bodies.
Ammonia: A chemical compound containing nitrogen, another plant nutrient.
pH: A measure of the acidity of water.
Dissolved Oxygen: The amount of oxygen in the water, essential for fish and other aquatic organisms.
Aluminum: A metal dissolved in water
N/A: Not Applicable

Performance assessments for the nine smaller wastewater treatment facilities are based upon quarterly averages. Results for April 2018 to March 2019 are presented below:

Small/Community Wastewater Treatment Facility Compliance Summary

Q1: April 2018 - June 2018

Wastewater Treatment Facility	$CBOD_5$	TSS	E. Coli.	Phosphorus	Ammonia	pH	Dissolved Oxygen	Total Chlorine	Toxicity
Aerotech	5	3	18	2.2	4.9	7.0	6.8	N/A	YES
Frame	5	1	10	N/A	N/A	6.8	N/A	N/A	N/A
Lakeside - Timberlea	5	18	12	1	3	7.1	N/A	0.10	YES
Lockview - MacPherson	4	4	67	0.4	2	7.2	N/A	N/A	N/A
Middle Musquodoboit	9	11	58	N/A	N/A	7.7	N/A	N/A	N/A
North Preston	7	25	136	0.5	0.3	6.7	N/A	N/A	N/A
Springfeild	5	19	14	N/A	N/A	6.8	N/A	N/A	N/A
Steeves (Wellington)	2	1	10	0.1	0.06	7.5	N/A	N/A	N/A
Uplands Park	6	9	10	N/A	N/A	6.3	N/A	N/A	N/A

Q2: July 2018 - September 2018

Wastewater Treatment Facility	$CBOD_5$	TSS	E. Coli.	Phosphorus	Ammonia	pH	Dissolved Oxygen	Total Chlorine	Toxicity
Aerotech	5	1	10	0.1	0.1	7.4	8.2	N/A	YES
Frame	4	1	10	N/A	N/A	7.3	N/A	N/A	N/A
Lakeside - Timberlea	5	12	14	1	1	7.3	N/A	0.10	YES
Lockview - MacPherson	5	2	10	0.3	0.3	6.8	N/A	N/A	N/A
Middle Musquodoboit	4	5	10	N/A	N/A	7.6	N/A	N/A	N/A
North Preston	5	3	10	0.2	0.1	6.7	N/A	N/A	N/A
Springfeild	4	5	10	N/A	N/A	7.2	N/A	N/A	N/A
Steeves (Wellington)	5	2	10	0.1	0.05	7.3	N/A	N/A	N/A
Uplands Park	10	11	63	N/A	N/A	6.9	N/A	N/A	N/A

Q3: October 2018 - December 2018

Wastewater Treatment Facility	$CBOD_5$	TSS	E. Coli.	Phosphorus	Ammonia	pH	Dissolved Oxygen	Total Chlorine	Toxicity
Aerotech	6	1	10	0.1	0.68	7.1	8.0	N/A	YES
Frame	8	1	10	N/A	N/A	7.2	N/A	N/A	N/A
Lakeside - Timberlea	7	14	24	2	2	7.0	N/A	0.08	YES
Lockview - MacPherson	5	7	32	0.4	1	6.9	N/A	N/A	N/A
Middle Musquodoboit	8	3	49	N/A	N/A	7.5	N/A	N/A	N/A
North Preston	8	4	13	0.3	1.2	6.9	N/A	N/A	N/A
Springfeild	10	10	10	N/A	N/A	6.8	N/A	N/A	N/A
Steeves (Wellington)	5	10	10	0.3	0.1	7.5	N/A	N/A	N/A
Uplands Park	8	9	13	N/A	N/A	7.1	N/A	N/A	N/A

Q4: January 2019 - March 2019

Wastewater Treatment Facility	$CBOD_5$	TSS	E. Coli.	Phosphorus	Ammonia	pH	Dissolved Oxygen	Total Chlorine	Toxicity
Aerotech	3	1	10	0.1	1.7	7.2	8.3	N/A	YES
Frame	6	1	21	N/A	N/A	6.9	N/A	N/A	N/A
Lakeside - Timberlea	7	16	14	2	5	7.1	N/A	0.10	YES
Lockview - MacPherson	8	20	40	0.5	11	7.1	N/A	N/A	N/A
Middle Musquodoboit	10	7	62	N/A	N/A	7.4	N/A	N/A	N/A
North Preston	8	16	10	0.4	1.1	7.0	N/A	N/A	N/A
Springfeild	12	57	155	N/A	N/A	6.6	N/A	N/A	N/A
Steeves (Wellington)	5	1	10	0.1	4.1	6.9	N/A	N/A	N/A
Uplands Park	14	12	309	N/A	N/A	6.9	N/A	N/A	N/A

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.

In order to ensure 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.

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.

Results by Activity			
April 2018 - March 2019			
System	**No. of Samples**	**No. of Exceedances**	**% Absent**
Pockwock	828	0	100%
Pockwock Central	520	0	100%
Lake Major	1197	1	99.92%
Bennery	153	0	100%
Five Islands	106	0	100%
Silver Sands	104	0	100%
Middle Musquodoboit	102	0	100%
Collins Park	104	0	100%
Miller Lake	104	0	100%
Bomont	104	0	100%
Total	**3322**	**0**	**99.97%**
Absent (A)	3321		99.97%
Present (P)		1	0.03%

Approximately 3,300 tests for total coliform bacteria are conducted each year. Results of 99.9% of samples with bacteria absent are consistently achieved, as shown on this page.

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 the unlikely event of a disruption in water quality.

Samples being tested

STEWARDSHIP OF THE ENVIRONMENT

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 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 of the work was a comprehensive pilot program to study the effectiveness and cost of various rehabilitation activities. Currently, there are six sewersheds that have undergone pilot activities with an additional pilot to study the effectiveness of "private-only" interventions.

Wet Weather Management Program Continued...

The table below summarizes the rehabilitation activities in the pilot areas and cumulative results to date.

WWMP Pilot Project Summary							
Sewershed	Rehabilitation Activity				Private Side Inspections	Peak Flow Reduction (L/sec)	Peak RDII Reduction (%)
	Mainline Lining	Lateral Lining	Manhole Lining	Deep Storm			
Stuart Harris Drive	✓	✓	✓		✓	45	45%
Leiblin Park	✓	✓				19	19%
North Preston	✓					27	24%
Cow Bay Road				✓	✓	86	4%
Crescent Avenue (MH182)	✓	✓	✓		✓	43	74%
Crescent Avenue (MH174)	✓	✓	✓		✓	41	92%

2018 saw the transition from pilot activities to the full scale implementation in the Fairview sewershed.

Fairview, Clayton Park, Bridgeview: Project Summary

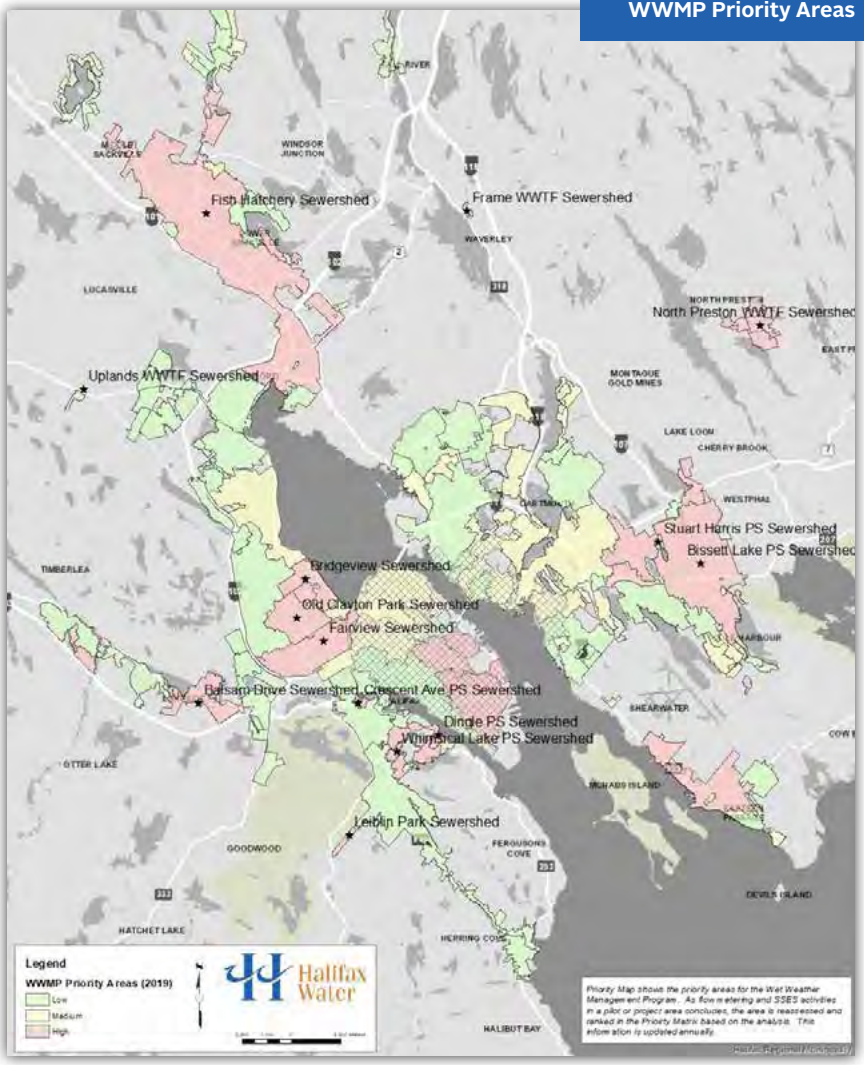
An analysis of flow monitoring data identified the potential for a significant reduction in Rainfall Derived Inflow and Infiltration (RDII) in the Fairview, Old Clayton Park and Bridgeview areas. With the goal of reducing peak flows by approximately 200 litres/second (L/s), a multi-year program was initiated in 2017 involving a sewershed evaluation survey and engineering design activities. In 2018/19, cured-in-place pipe (CIPP) lining of approximately 9.8 km of pipe will be completed as part of Phase 1 of this project. It will include the Fairview area and part of the Bridgeview area. For 2019/20, Phase 2 of the lining project will see approxiamtely 9.5 km completed in the Old Clayton Park area.

Private side inspections will also be performed in 2018/19/20 to identify and potentially eliminate private-property illegal stormwater connections.

Flow monitoring and data analysis will be performed to quantify RDII reductions and assess the effectiveness of the asset renewal during all phases of the project.

Moving forward, the WWMP team continues to identify areas for future study and I/I reduction activities. The map identifies the current priority areas for the Wet Weather Management Program and the location of the pilot sewersheds.

WWMP Priority Areas



Wastewater Research Program

We are proud to announce that Dalhousie University and Halifax Water have completed a Memorandum of Understanding that will direct research initiatives to the advancement of wastewater effluent quality for the protection of public and environmental health. The initial phase of the partnership will focus on improving wastewater effluent quality from the Halifax, Dartmouth and Herring Cove WWTFs to align with the Federal Wastewater Systems Effluent Regulations. This will be accomplished through bench, pilot, and full scale studies and tests of a wide variety of wastewater treatment parameters, including contaminants of emerging concern such as microplastics. The project will engage highly qualified personnel over three years to address research needs surrounding the increasing complexity of Canada's wastewater.

The outcome of the research program will establish a long term wastewater research initiative; provide opportunities for continued training and development; and advancements in wastewater treatment beneficial to Halifax Water, the industry and the environment.

In a more global context, this research also helps support United Nations Sustainable Development Goal 6: Ensure availability and sustainable management of water and sanitation for all.

Leveraging the Power of CMMS Data

The Computerized Maintenance Management System (CMMS) system, CityWorks enables Halifax Water staff to effectively manage service requests. The system has been fully implemented in the Operations divisions and further enhancement will occur in 2019-20. Service delivery is customer focused while prioritizing work based on risk to human health and the environment. As part of continual improvement, Halifax Water Operations staff has implemented a planning process to ensure work is delivered in a timeline that is appropriate to the maintenance requirement. Under the planning process, work is categorized into one of three levels of importance. Category 'A' tasks are assignments that require Operations intervention to mitigate an immediate risk to human health or the environment. Category 'A' tasks are always given top priority. Category 'B' maintenance requests require some Operations intervention within the construction season to prevent escalation into a category 'A'. Category 'C' items are generally more routine and will not pose an immediate risk within the next two or three years.

Understanding that the majority of maintenance is category 'B' and 'C', Operations is able to group work based on the type of work and geographic location to increase efficiency. A reserve in work capacity is maintained to address Category 'A' emergencies that may arise and require immediate response.

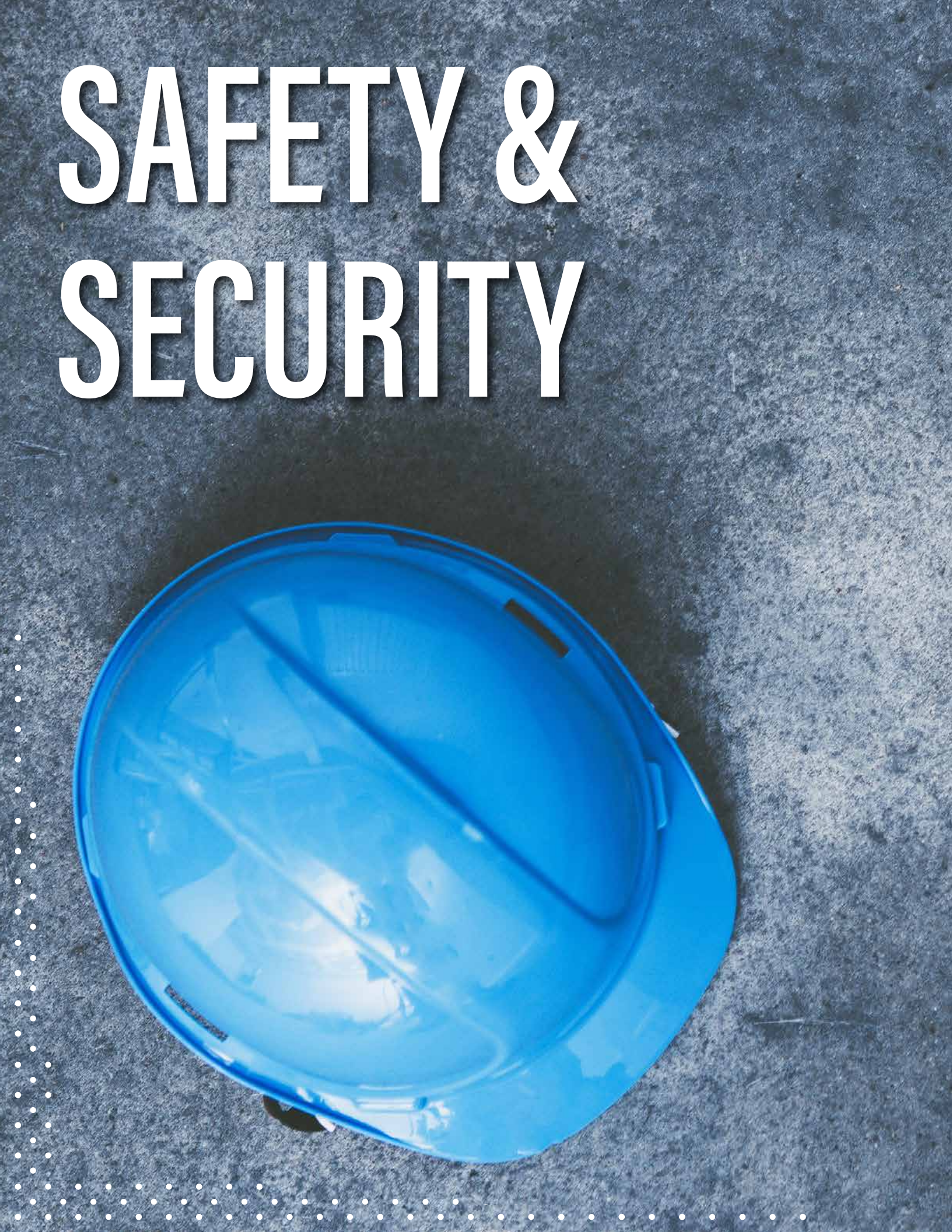
Adopting this planning process has led to two significant realizations;

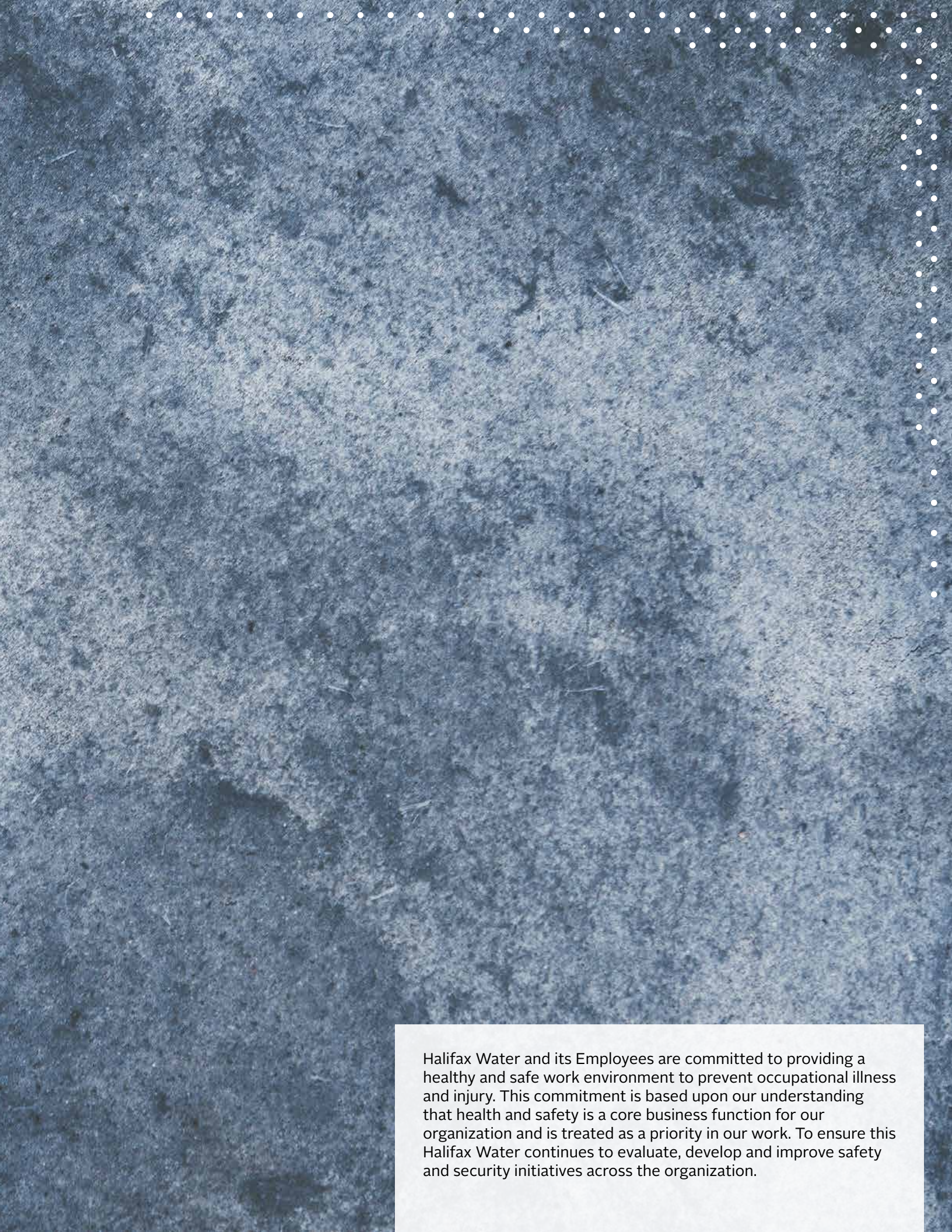
1. Only a small percentage of the work is a genuine emergency. Staff are able to complete the bulk of the remaining work in a more efficient manner; and
2. Operations is able to undertake more complex work when it is planned as compared to the reactive approach historically used in municipal operations throughout Canada and North America.

CMMS facilitates effective workflow and monitoring to ensure efficient delivery of our services thereby reducing the occurrence of emergency work.

CMMS on a Tablet

SAFETY & SECURITY





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.

Young Workers

Recognizing the importance of young workers entering the work force, along with the annual hiring of summer students, Halifax Water collaborated with the Nova Scotia Department of Labour and Advanced Education as part of their "Young Workers Blitz". The goal of this educational initiative is to engage young workers in the subject of Occupational Health and Safety at their workplaces. The focus is on providing young workers with information on their Rights and Responsibilities under the Occupational Health and Safety Act.

Young Workers Blitz at Halifax Water

Safety Audits & Training

With a busy 2018/19 Capital Project season, Halifax Water continues to have a third party safety auditor engaged to conduct random field safety audits at our many project sites.

Safety Audit Photo

Safety Audit Photo

Stemming from recommendations from an external safety audit of our programs, Halifax Water delivered mandatory training in the Internal Responsibility System (IRS) to all Employees. The training served as a reminder to all staff of their responsibility to work safely and be mindful that their coworkers are doing the same.

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 ICS when managing water main and forcemain breaks, and as a planning tool for larger multi-facetted projects like the North End Feeder repairs.

The North End Feeder (NEF) is a water transmission main critical to the supply of water to peninsular Halifax. In the Fall of 2017, it was determined that there was a leak in this line which would need to be repaired.

Repair of this line was a significant challenge due to its critical nature and difficulty in accessing it. The leak was located in a 1 km stretch that connects the bottom of Evans Avenue in Fairview with the intersection of Lady Hammond Road and Commission Street. This section is located in a rock tunnel that crosses below the Bedford Highway, Fairview Cove container terminal and the Windsor Street/Bedford Highway intersection at depths of between 20 and 40 m.

After a year of planning, a team of approximately 50 Halifax Water staff with, contractor support, executed the operations to shut down, drain, repair and recommission the water transmission main over a four day period in mid-October. Due to the critical nature of the main, it was necessary to operate several manual backup systems in order to maintain water supply to the peninsula. The repair was successfully completed with no measurable disruption in service to customers. In addition to repairing this critical main, the repair provided an opportunity to test and operate Halifax Water's emergency systems.

The Internal Command System was used to complete this operation.


MOTIVATED
& SATISFIED
EMPLOYEES

Halifax Water employs 475 people full time, and tries hard to ensure we are an organization people want to work for. This is critically important as approximately 30% may retire in the next five years.

As mentioned in the Effective Asset Management section of this report, in 2018-19, an internal audit was conducted on the current payroll system. Results showed that there was significant risk due to the number of manual processes. Therefore, a recommendation was approved to conduct a needs assessment and requirements to implement a new Human Capital Management (HCM) System. As a result, Telus ViP was selected as the best system to meet Halifax Water's emerging needs. A project team was deployed and is currently on schedule to go live in March 2020.

The health and safety of our Employees and the general public is Halifax Water's highest priority. Therefore, in 2019, Halifax Water rolled out a new Fit for Duty Policy. The purpose of the policy is to provide a working environment that is free of the effects of Drug and Alcohol use, and to ensure that all employees are treated fairly and consistently, with dignity and respect. Awareness and Education sessions were held with all employees in early 2019 for an effective date of May 1, 2019.

Collective Bargaining activities commenced in the fall of 2018 for both the CUPE Local 227 and CUPE Local 1431 collective agreements. The Collective Bargaining committees worked diligently and were well on track to sign five year agreements for both Locals in spring 2019.

Service Award Banquet

30 Year Award

Administration
Carl Yates

Corporate Services
Peggy MacDonald

Wastewater & Stormwater Services
Chris McSweeney

Water Services
Robert Goguen

Carl Yates receiving his 30 Year Award

25 Year Award

Corporate Services
Michelle Comeau
Sharon Harding
Peter Johnson

Engineering & Information Services
Derek McElmon
Stephen Skinner

Wastewater & Stormwater Services
Dereck Avery
Colette Cleary
Joseph Hazelden
Derrick Langille
Murray Pictou
Phillip Pynn
Cedric Williams

Water Services
Garry Oxner
Michael Vardy

20 Year Award

Corporate Services
Corey Whalen

Wastewater & Stormwater Services
Sherry Parsons

Administration
Reid Campbell

Water Services
Wendell Coveyduc
Dave Swim

10 Year Award

Corporate Services
Allan Campbell
Corey Ellis
Cindy MacLean

Engineering & Information Services
Edward Jeffrey
Kirk Mills
Krista Whynot
April Tucker

Regulatory Services
Kenda MacKenzie
Erinn O'Toole

Wastewater & Stormwater Services
Martin Austin
Marcel Cornect
Gerald Doucette
Don Greer
David Hamelin
Brad Jordan
Emmett Leahy
Donald MacDonald
Glenn MacDonald
Justin MacKinnon
Andrew MacNab
Alan O'Leary
Greg Prime
Joshua Purcell
Angela Rayne
Sergei Shirokov
Kristopher Shrum
Josh Slaunwhite
Peter White
Paul Harder
Steve MacRae
Anthony Riley
Blake Wright

Carolyn Bruce Customer Service Excellence Award

The Carolyn Bruce Customer Service Excellence Award was established in 2012 in memory of, and to honour Carolyn's unforgotten legacy. Each year Halifax Water recognizes an employee who has shown exemplary customer service. We are pleased to advise that in 2018 we received numerous nominations. This year's award was presented to Allan Ossinger for his continued commitment and high level service provided to Halifax Water's customers.

Allan Ossinger receiving the Carolyn Bruce Customer Service Excellence Award

Corporate Social Responsibility

Halifax Water is in the homes and businesses of its customers everyday providing world-class water, wastewater and stormwater services. We are also proud to be in the community throughout the year helping to support a wide variety of events and causes.

Halifax Water Employee Fundraising Initiatives

The community we work in is important to Halifax Water employees. Employees take that responsibility to heart with many fundraising initiatives such as United Way Halifax. In 2018 Halifax Water employees raised $4,112.00 for United Way Halifax through fundraising events.

Halifax Water's H_2O (Help to Others) Fund raised a total of $3,334.00 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.

Halifax Water employees also donated $9,022.00 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 raised $1,659.70. The funds were split equally between Bryony House, Avalon Sexual Assault Centre, Feed NS, Souls Harbour Rescue, and Hope Cottage.

The Carolyn Bruce Angel Tree program, through the Salvation Army donated gifts for 100 children in Halifax Regional Municipality who need it the most. This past year saw a small sponsorship competition between Fleet/Stores, the Eastern Passage Wastewater Treatment Facility (WWTF) and AeroTech WWTF. The efforts of this competition resulted in 18 children receiving gifts with Fleet/Stores winning by 10.

Employee Gift Donations

As part of the Bluenose Marathon, employees raised $1992 for Special Olympics Nova Scotia through barbecues, 50/50 draws and other activities.

Corporate Social Responsibility Continued...

Supporting Events in the Community

The Shed on the Halifax Waterfront

Halifax Water is active in the community supporting a wide variety of groups through our portable water station program. The program runs from early spring until late fall. Events range from large venues such as the Jazzfest and Bluenose Marathon, to community block parties. 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 2018 season Halifax Water provided water stations to 31 events.

The Shed, Halifax Water's educational and promotional vehicle spent July and August on the Halifax waterfront. An estimated 9,000 visitors took part in trivia challenges, water taste tests, viewed informational videos and brochures, and of course had access to tap water at The Shed.

Halifax Water also supports Special Olympics Nova Scotia at a number of events throughout the year including "The Truck Convoy". Last year 7 Halifax Water employees volunteered their time to prepare their rigs and take part in this great fundraising cause. For the second year in row, the Halifax Water crew brought home the award for "Best in Fleet." While winning is great, the real reward is the smiles and excitement the event brings to all the Special Olympians at the Truck Convoy.

Halifax Water Employees taking part in "The Truck Convoy" in support of Special Olympics Nova Scotia

Scholarships

Since 2008 Halifax Water has supported the educational growth of our community through scholarships provided to the Nova Scotia Community College. There are 4 scholarships provided annually:

- 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

2018/19 marked 10 years of support through this program and has provided $101,400 in scholarship funding to students. These scholarships help support students now, and the community well into the future.

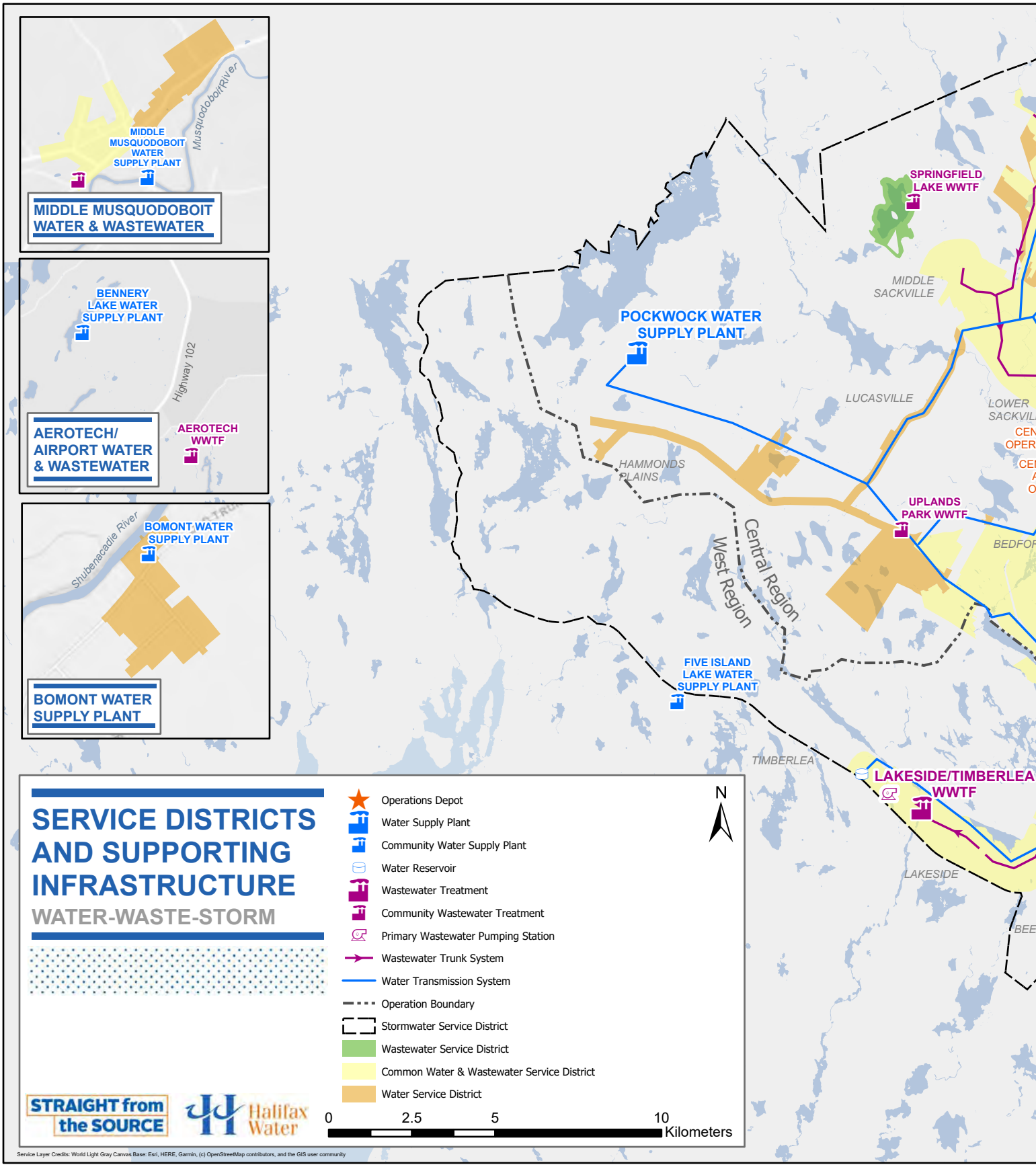
Halifax Water NSCC Alumni Event

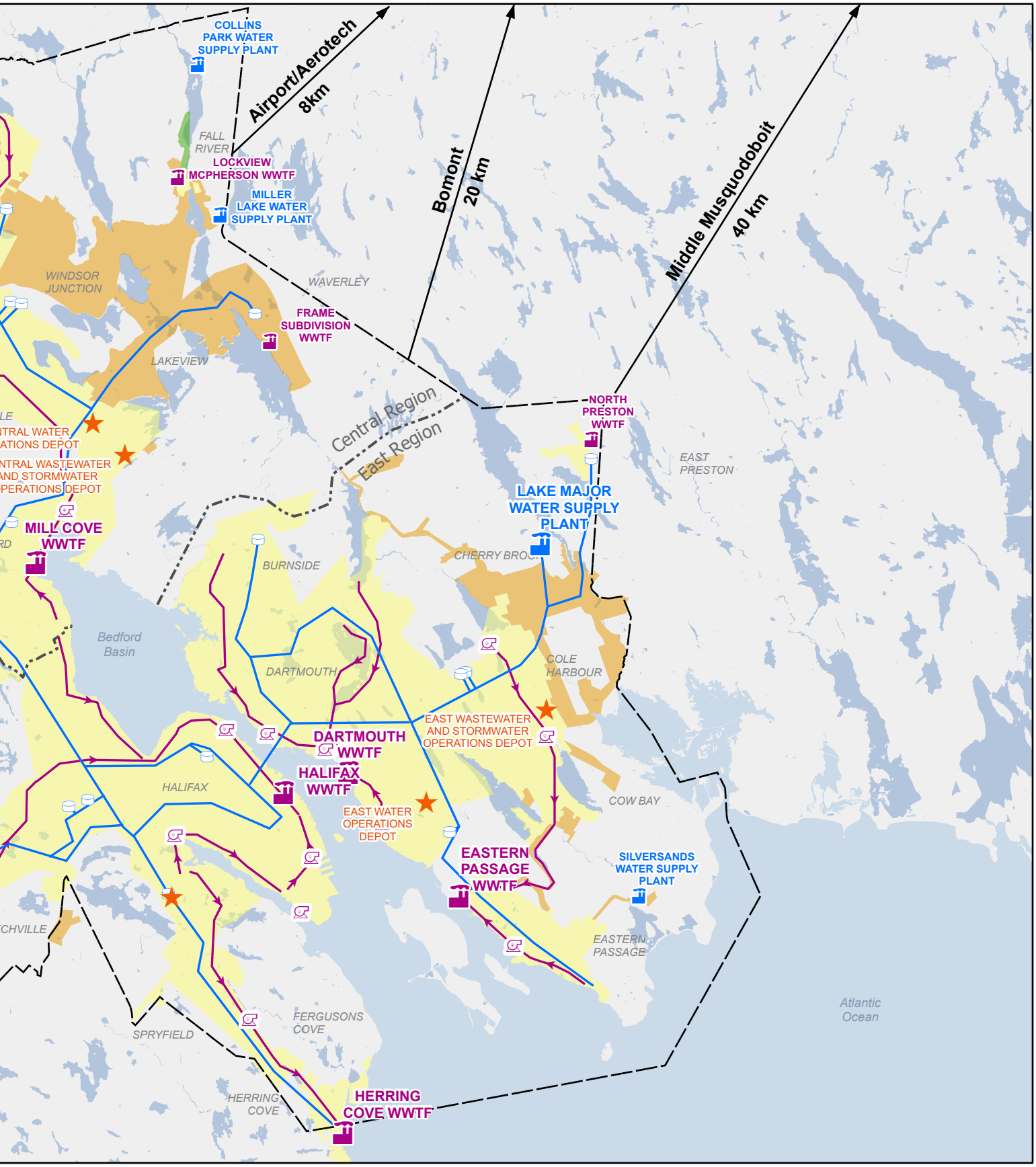
First Nations Water Authority

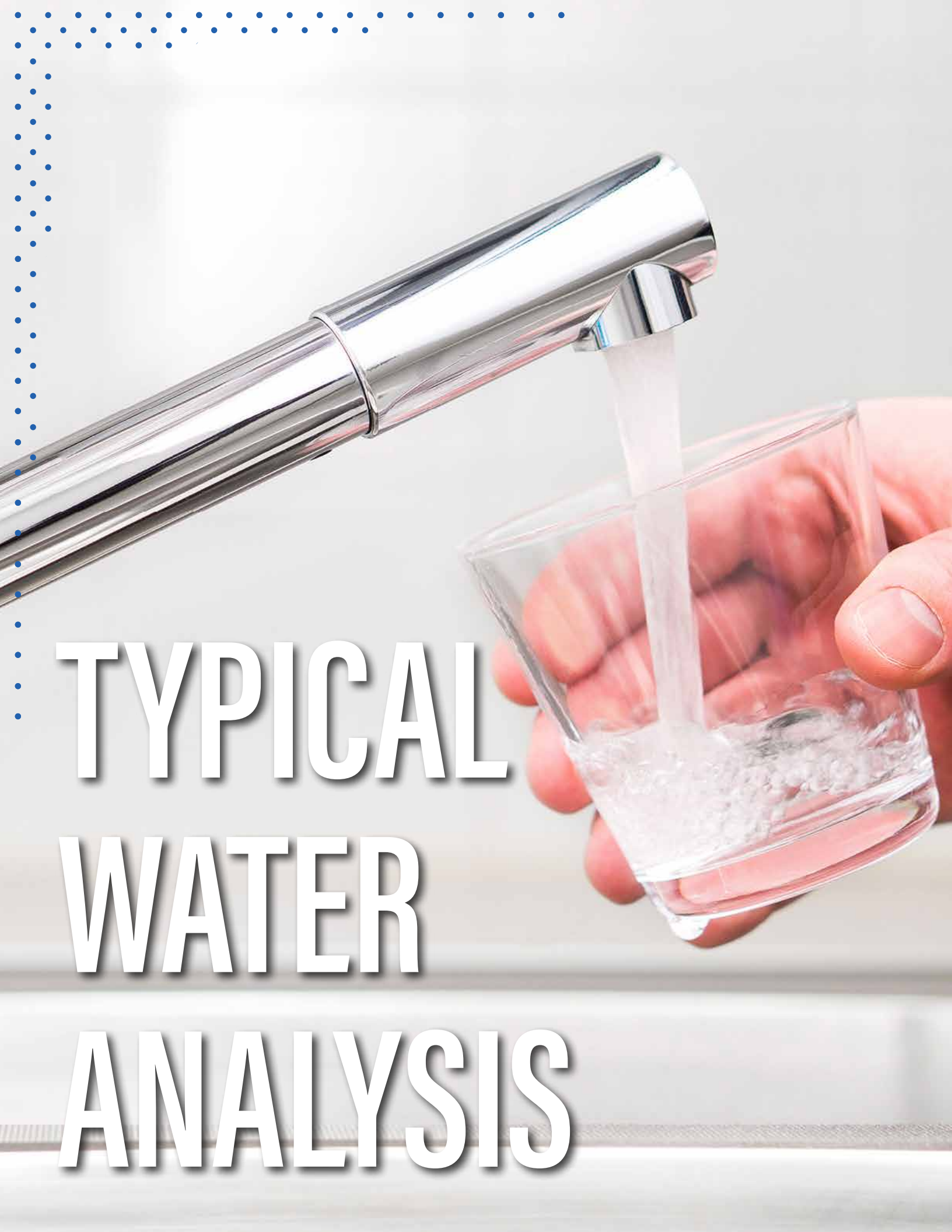
Access to safe, clean drinking water and wastewater service is a public health issue and one of the fundamental building blocks of community economic development. For many First Nations in our region and across the country, there is no access to safe drinking water or wastewater service.

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.

In 2018, the Atlantic First Nations Water Authority (AFNWA) was incorporated. The AFNWA is groundbreaking and lays the foundation for short term economic growth with the construction of the required infrastructure, and long term opportunities including well-paying careers for First Nations communities in the water industry.


MIDDLE MUSQUODOBOIT WATER SUPPLY PLANT
Musquodoboit River
MIDDLE MUSQUODOBOIT WATER & WASTEWATER
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
CEN
OPER
HAMMONDS PLAINS
UPLANDS PARK WWTF
BEDFOR
Central Region
West Region
FIVE ISLAND LAKE WATER SUPPLY PLANT
TIMBERLEA
LAKESIDE/TIMBERLEA WWTF
LAKESIDE
BEE
SERVICE DISTRICTS AND SUPPORTING INFRASTRUCTURE
WATER-WASTE-STORM
Operations Depot
Water Supply Plant
Community Water Supply Plant
Water Reservoir
Wastewater Treatment
Community Wastewater Treatment
Primary Wastewater Pumping Station
Wastewater Trunk System
Water Transmission System
Operation Boundary
Stormwater Service District
Wastewater Service District
Common Water & Wastewater Service District
Water Service District
N
0
2.5
5
10
Kilometers
STRAIGHT from the SOURCE
Halifax Water
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
MILLER LAKE WATER SUPPLY PLANT
WINDSOR JUNCTION
WAVERLEY
FRAME SUBDIVISION WWTF
LAKEVIEW
NORTH PRESTON WWTF
Central Region
East Region
EAST PRESTON
LAKE MAJOR WATER SUPPLY PLANT
MILL COVE WWTF
BURNSIDE
CHERRY BROOK
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

2018 - 2019

(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 $CaCO_3$)	<5.0	21.0	<5.0	24.0	-	-
Aluminum	0.102	0.105	0.180	0.015	-	[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	4.2	1.1	16.0	-	-
Chloride	7.2	8.9	6.3	8.5	-	≤250
Chlorate	<0.1	<0.1	<0.1	<0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	14.5	<5.0	32.0	<5.0	-	≤15.0
Conductivity (µS/cm)	38.0	97.0	35.0	150.0	-	-
Copper (Total)	0.042	<0.002	0.083	<0.002	-	≤1.0
Fluoride	<0.10	0.68	<0.10	0.46	1.5	0.7
Hardness (as $CaCO_3$)	4.3	12.0	4.4	41.0	-	-
HAA5 (avg.)	-	0.020	-	0.026	0.080	-
Iron (Total)	<0.05	<0.05	0.09	<0.05	-	<0.3
Langelier Index @ 4°C	-	-2.43	-	-1.66	-	-
Langelier Index @ 20°C	-	-2.18	-	-1.41	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	5.0	-
Magnesium	0.410	0.410	0.410	0.430	-	-
Manganese (Total)	0.024	0.011	0.048	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	0.034	<0.050	<0.050	<0.050	10.0	-
pH (pH Units)	6.5	7.5	6.1	7.3	-	7.0 - 10.5
Potassium	0.260	0.310	0.270	0.290	-	-
Sodium	4.5	12.0	4.0	10.3	-	≤200
Solids (Total Dissolved)	25.5	63.5	28.0	77.0	-	≤500
Sulphate	2.7	8.0	<2.0	29.0	-	≤500
Turbidity (NTU)	0.40	[B]0.11	0.41	[B]0.04	[B]0.2/1.0	-
Total Organic Carbon (TOC)	3.90	2.70	5.50	2.30	-	-
THM's (avg.)	-	0.034	-	0.040	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.092	<0.005	0.084	-	≤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 (i.e. Pockwock) is <0.20 mg/l and conventional filtration (i.e. Lake Major) is <0.10 mg/l.

[B]The Pockwock and Lake Major plants analyze turbidity immediately post-filtration. Each filter must produce water with a turbidity of <0.20 NTU 95% of the time and <1.00 NTU 100% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS – SMALL SYSTEMS

2018 - 2019

(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)	<5.0	34.0	32.0	36.0	-	-
Aluminum	0.104	0.011	<0.005	<0.005	-	0.2
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	<0.001	<0.001	0.004	0.004	0.010	-
Calcium	2.7	17.2	9.2	9.3	-	-
Chloride	8.2	11.0	6.1	7.2	-	≤250
Chlorate	0.12	0.28	<0.1	<0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	25.0	<5.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	45.0	155.0	82.0	87.0	-	-
Copper (Total)	0.055	0.020	0.003	0.013	-	≤1.0
Fluoride	<0.10	<0.10	0.36	0.41	1.5	-
Hardness (as CaCO3)	9.1	46.0	28.0	28.0	-	-
HAA5 (avg.)	-	0.024	-	<0.005	0.080	-
Iron (Total)	0.44	<0.05	<0.05	<0.05	-	≤0.3
Langelier Index @ 4°C	-	-1.57	-2.17	-1.47	-	-
Langelier Index @ 20°C	-	-1.32	-1.92	-1.22	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	5.0	-
Magnesium	0.568	0.650	1.1	1.2	-	-
Manganese (Total)	0.277	0.041	<0.002	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	0.050	0.053	<0.050	<0.050	10.0	-
pH (pH Units)	6.5	7.6	7.1	7.6	-	7.0 - 10.5
Potassium	0.220	0.240	0.51	0.62	-	-
Sodium	4.5	13.0	5.8	6.5	-	≤200
Solids (Total Dissolved)	28.5	109.5	51.0	62.0	-	≤500
Sulphate	3.2	27.0	<2.0	<2.0	-	≤500
Turbidity (NTU)	1.60	[A]0.04	0.18	[B]0.04	[A]0.2/1.0 [B]1.0	-
Total Organic Carbon (TOC)	4.90	2.00	<0.50	0.50	-	-
THM's (avg.)	-	0.037	-	<0.001	0.100	-
Uranium (µg/l)	<0.10	<0.10	9.60	9.90	20.0	-
Zinc (Total)	<0.005	0.036	<0.005	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	0.27/0.34	0.29/0.12	0.5 / 1.0	-
Lead -210 (Bq/L)	-	-	-	<0.10	0.2	-

[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

2018 - 2019

(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)	13.0	12.0	47.0	140.0	-	-
Aluminum	0.052	<0.005	<0.005	<0.005	-	0.2
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	0.003	<0.001	<0.001	<0.001	0.010	-
Calcium	6.4	0.3	14.0	3.9	-	-
Chloride	37.0	12.2	12.0	8.1	-	≤250
Chlorate	<0.1	0.24	<0.1	0.15	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Color Units)	14.4	<5.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	160.0	44.0	150.0	280.0	-	-
Copper (Total)	<0.002	<0.002	<0.002	0.003	-	≤1.0
Fluoride	<0.10	<0.10	<0.10	<0.10	1.5	-
Hardness (as CaCO3)	20.0	<1.0	57.0	15.0	-	-
HAA5 (avg.)	-	<0.005	-	<0.005	0.080	-
Iron (Total)	0.09	<0.05	<0.05	<0.05	-	≤0.3
Langelier Index @ 4°C	-2.70	-3.99	-2.19	-1.34	-	-
Langelier Index @ 20°C	-2.45	-3.74	-1.94	-1.09	-	-
Lead (Total) (µg/l)	<0.50	0.94	<0.50	<0.50	5.0	-
Magnesium	0.90	<0.10	5.00	1.30	-	-
Manganese (Total)	0.052	<0.002	<0.002	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	0.113	0.073	0.390	0.360	10.0	-
pH (pH Units)	7.1	7.2	6.7	7.7	-	7.0 - 10.5
Potassium	0.94	0.25	1.10	0.62	-	-
Sodium	22.0	10.0	6.2	44.0	-	≤200
Solids (Total Dissolved)	100.0	48.0	120.0	95.0	-	≤500
Sulphate	7.0	<2.0	20.9	<2.0	-	≤500
Turbidity (NTU)	1.75	[A]0.04	0.12	[A]0.03	[A]0.1/0.3	-
Total Organic Carbon (TOC)	4.80	<0.50	0.63	<0.50	-	-
THM's (avg.)	-	0.005	-	0.002	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.072	<0.005	0.068	-	≤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 - SMALL SYSTEMS

2018 - 2019

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	SILVER SANDS		MILLER LAKE		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	[A]Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	72.0	68.0	-	24.0	-	-
Aluminum	<0.005	<0.005	-	0.086	-	0.2
Ammonia (N)	0.060	<0.050	-	0.240	-	-
Arsenic	0.002	<0.001	-	<0.001	0.010	-
Calcium	37.0	35.0	-	6.2	-	-
Chloride	67.0	68.0	-	9.7	-	≤250
Chlorate	<0.10	0.36	-	<0.10	1.0	-
Chlorite	<0.10	<0.10	-	<0.10	1.0	-
Colour (True Color Units)	<5.0	<5.0	-	<5.0	-	≤15.0
Conductivity (µS/cm)	370.0	360.0	-	100.0	-	-
Copper (Total)	<0.002	0.005	-	<0.002	-	≤1.0
Fluoride	0.19	0.22	-	0.82	1.5	-
Hardness (as CaCO3)	110.0	110.0	-	17.0	-	-
HAA5 (avg.)	-	<0.005	-	0.045	0.080	-
Iron (Total)	0.97	<0.05	-	<0.05	-	≤0.3
Langelier Index @ 4°C	-0.66	-0.72	-	-2.12	-	-
Langelier Index @ 20°C	-0.41	-0.47	-	-1.87	-	-
Lead (Total) (µg/l)	<0.50	<0.50	-	<0.50	5.0	-
Magnesium	5.10	4.70	-	0.440	-	-
Manganese (Total)	1.008	0.006	-	0.008	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	-	<0.013	1.0	-
Nitrate & Nitrite (as N)	<0.050	<0.050	-	<0.050	10.0	-
pH (pH Units)	7.6	7.7	-	7.4	-	7.0 - 10.5
Potassium	0.920	0.820	-	0.330	-	-
Sodium	24.0	27.0	-	14.0	-	≤200
Solids (Total Dissolved)	210.0	220.0	-	62.0	-	≤500
Sulphate	20.0	19.0	-	9.0	-	≤500
Turbidity (NTU)	10.30	[B]0.10	-	[B]0.15	[B]1.0	-
Total Organic Carbon (TOC)	<0.50	<0.50	-	2.10	-	-
THM's (avg.)	-	<0.001	-	0.069	0.100	-
Uranium (µg/l)	<0.10	<0.10	-	<0.10	20.0	-
Zinc (Total)	<0.005	<0.005	-	0.087	-	≤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 Miller Lake wells this past year, since the wells were not in operation. Treated water was supplied from either the Lake Major or Pockwock water systems until the water system is permanently connected to the Pockwock water system.

[B]The Silver Sands and Miller Lake plants 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 OF BOMONT WATER

2018 - 2019

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	BOMONT				GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water			Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	11.0	22.0			-	-
Aluminum	0.091	0.069			-	0.2
Ammonia (N)	<0.050	<0.050			-	-
Arsenic	0.002	<0.001			0.010	-
Calcium	8.1	4.7			-	-
Chloride	23.0	38.7			-	≤250
Chlorate	<0.1	<0.1			1.0	-
Chlorite	<0.1	<0.1			1.0	-
Colour (True Colour Units)	26.0	<5.0			-	≤15.0
Conductivity (µS/cm)	120.0	94.0			-	-
Copper (Total)	0.002	<0.002			-	≤1.0
Fluoride	<0.10	0.34			1.5	-
Hardness (as CaCO3)	24.0	14.0			-	-
HAA5 (avg.)	-	0.020			0.080	-
Iron (Total)	0.16	<0.05			-	<0.3
Langelier Index @ 4°C	-2.59	-2.19			-	-
Langelier Index @ 20°C	-2.34	-1.94			-	-
Lead (Total) (µg/l)	<0.50	<0.50			5.0	-
Magnesium	0.890	0.420			-	-
Manganese (Total)	0.028	0.006			-	≤0.05
Mercury (µg/l)	<0.013	<0.013			1.0	-
Nitrate & Nitrite (as N)	0.063	<0.050			10.0	-
pH (pH Units)	7.2	7.4			-	7.0 - 10.5
Potassium	0.650	0.330			-	-
Sodium	13.0	15.0			-	≤200
Solids (Total Dissolved)	200.0	150.0			-	≤500
Sulphate	40.0	5.7			-	≤500
Turbidity (NTU)	1.34	[A]0.29			[A]0.1/0.3	-
Total Organic Carbon (TOC)	6.0	2.3			-	-
THM's (avg.)	-	0.020			0.100	-
Uranium (µg/l)	<0.10	<0.10			20.0	-
Zinc (Total)	<0.005	0.069			-	≤5.0
PCB (µg/l)	<0.05	<0.05			-	-
Gross Alpha / Gross Beta (Bq/L)	<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.

FINANCIAL OVERVIEW & STATEMENTS

Financial Overview

Abbreviated Financial Information

March 31, 2019

(In thousands)

ASSETS		
Fixed		
Utility Plant in Service at Cost		$1,739,067
Provision for Depreciation		(463,924)
Net Book Value		1,275,143
Capital Work In Progress		29,605
Regulatory Asset		3,004
Current		92,873
TOTAL ASSETS		**$1,400,625**
LIABILITIES		
Long Term Debt		$207,441
Other Than Long Term Debt		101,453
TOTAL LIABILITIES		**$308,894**
EQUITY		
Special Purpose Reserves		$41,752
Contributed Capital Surplus		1,063,145
Accumulated Other Comprehensive Income		(41,209)
Operating Surplus used to Fund Capital, Cumulative		12,380
Capital Surplus		1,076,068
Operating Surplus April 1, 2018		20,482
2018/19 OPERATIONS		
Operating Revenue	$138,201	
Financial Revenue	1,899	
Revenue From all Sources	$140,100	
Expenditures		
Operating Expenses	$88,720	
Depreciation	23,007	
Grant in lieu of taxes HRM	4,999	
Financial Expenses	28,193	
Total Expenditures	$144,919	
Excess of Expenditures over Revenue		(4,819)
Accumulated Operating Surplus March 31, 2019		15,663
TOTAL EQUITY		**$1,091,731**
TOTAL LIABILITIES & EQUITY		**$1,400,625**

Figures in the Financial Overview are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities. The audited financial statements on the following pages are prepared in accordance with International Financial Reporting Standards – IFRS.

Financial Statements

Halifax Regional Water Commission
March 31, 2019

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Independent auditor's report

To the Members of the Board of the
Halifax Regional Water Commission

Opinion

We have audited the financial statements of the Halifax Regional Water Commission ("the Commission"), which comprise the statement of financial position as at March 31, 2019, and the statement of comprehensive earnings, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly in all material respects, the financial position of the Halifax Regional Water Commission as at March 31, 2019, and its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs).

Basis for opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the financial Statements* section of our report. We are independent of the Commission in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of matter

Our audit was conducted for the purposes of forming an opinion on the financial statements taken as a whole. The schedules on pages 88-97 are presented for purposes of additional information and are not a required part of the financial statements. Such information has been subjected to the auditing procedures applied to the period ended March 31, 2019, only to the extent necessary to express an opinion, on the audit of the financial statements taken as a whole.

Responsibilities of management and those charged with governance for the financial statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with International Financial Reporting Standards (IFRSs), and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Commission's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Commission or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Commission's financial reporting process.

Grant Thornton

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Commission's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Commission to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Grant Thornton LLP

Halifax, Canada
June 20, 2019

Chartered Professional Accountants
Licensed Public Accountants

Halifax Regional Water Commission
Statement of earnings

Year ended March 31, 2019 (in thousands)

	2019	2018
Operating revenues		
Water	$ **48,040**	$ 47,220
Wastewater	**69,901**	69,994
Stormwater	**9,741**	10,016
Fire protection	**7,074**	7,074
Private fire protection	**869**	856
Other operating revenue	**2,576**	2,985
	138,201	138,145
Operating expenditures (Note 14)		
Water supply and treatment	**9,766**	8,646
Water transmission and distribution	**10,902**	9,410
Wastewater collection	**13,124**	12,642
Stormwater collection	**4,949**	4,842
Wastewater treatment	**19,789**	19,647
Engineering and information services	**8,990**	8,105
Regulatory services	**2,319**	2,450
Customer service	**4,916**	4,896
Administration and pension	**13,965**	12,553
Depreciation and amortization	**44,066**	41,625
	132,786	124,816
Earnings from operations before financial and other revenues and expenditures	**5,415**	13,329
Financial and other revenues		
Interest	**1,157**	694
Contributed capital	**18,142**	17,372
Other	**742**	3,792
	20,041	21,858
Financial and other expenditures		
Interest on long term debt	**7,430**	7,884
Amortization of debt discount	**199**	202
Grant in lieu of taxes	**4,999**	4,774
Other	**232**	354
	12,860	13,214
Earnings for the year before regulatory deferral account balance amortization	**12,596**	21,973
Regulatory deferral account balance amortization (Note 5)	**(192)**	(192)
Earnings for the year	**$ 12,404**	$ 21,781

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of comprehensive earnings

Year ended March 31 (in thousands)	2019	2018
Earnings for the year	**$ 12,404**	$ 21,781
Other comprehensive income (loss)		
Items that will not be reclassified subsequently to earnings:		
Re-measurement on defined benefit plans	**3,734**	(1,750)
Total comprehensive earnings for the year	**$ 16,138**	$ 20,031

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of financial position

March 31 (in thousands)

	2019	2018
Assets		
Current		
Cash and cash equivalents	**$ 51,603**	$ 51,470
Receivables		
Customer charges and contractual	**17,407**	17,494
Unbilled service revenues	**17,012**	16,640
Halifax Regional Municipality	**3,728**	5,274
Inventory	**2,057**	1,442
Prepaids	**1,066**	1,013
	92,873	93,333
Intangible assets (Note 11)	**15,418**	13,877
Capital work in progress	**29,605**	24,550
Utility plant in service (Note 12)	**1,233,440**	1,200,430
Total assets	**1,371,336**	1,332,190
Regulatory deferral account balance (Note 5)	**3,004**	3,196
Total assets and regulatory deferral account debit balances	**$ 1,374,340**	$ 1,335,386
Liabilities		
Current		
Payables and accruals		
Trade	**$ 23,493**	$ 22,715
Interest on long term debt	**2,051**	2,030
Halifax Regional Municipality	**2,865**	2,439
Contractor and customer deposits	**207**	186
Current portion of deferred contributed capital	**13,846**	13,405
Current portion of long term debt (Note 13)	**24,709**	22,630
Unearned revenue	**507**	584
	67,678	63,989
Deferred contributed capital	**867,802**	842,967
Long term debt (Note 13)	**182,732**	190,871
Employee benefit obligation – pension plan (Note 4)	**67,755**	65,486
Employee benefit obligation – post-retirement benefits (Note 4)	**380**	430
Employee benefit obligation – pre-retirement benefits (Note 4)	**4,195**	3,983
	1,190,542	1,167,726
Equity		
Accumulated other comprehensive loss (page 6)	**(41,209)**	(44,943)
Accumulated surplus (page 6)	**225,007**	212,603
	183,798	167,660
	$ 1,374,340	$ 1,335,386

Contingent liabilities (Note 3)
Commitments (Note 6)
Subsequent event (Note 15)

Approved by the Board

Commissioner Commissioner

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of changes in equity
Year ended March 31, 2019 (in thousands)

	Accumulated other comprehensive income (loss)	Accumulated surplus	Total
Balance at March 31, 2017	$ (43,193)	$ 190,822	$ 147,629
Earnings for the year	-	21,781	21,781
Other comprehensive loss	(1,750)	-	(1,750)
Comprehensive earnings for the year	(1,750)	21,781	20,031
Balance at March 31, 2018	$ (44,943)	$ 212,603	$ 167,660
Balance at March 31, 2018	**$ (44,943)**	**$ 212,603**	**$ 167,660**
Earnings for the year	**-**	**12,404**	**12,404**
Other comprehensive income	**3,734**	**-**	**3,734**
Comprehensive earnings for the year	**3,734**	**12,404**	**16,138**
Balance at March 31, 2019	**$ (41,209)**	**$ 225,007**	**$ 183,798**

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of cash flows

Year ended March 31 (in thousands)

	2019	2018
(Decrease) increase in cash and cash equivalents		
Operating		
Comprehensive earnings for the year	**$ 16,138**	$ 20,031
Depreciation and amortization	**27,787**	25,926
Employee benefit obligations	**2,431**	7,254
Gain (loss) on disposal of plant in service	**188**	(127)
	46,544	53,084
Change in non-cash operating working capital items (Note 7)	**1,762**	754
	48,306	53,838
Financing		
Proceeds from issuance of long term debt	**16,500**	10,000
Contributed capital	**13,691**	11,162
Debt issue costs, net	**70**	121
Principal repayment on Harbour Solutions long term debt	**(6,500)**	(6,500)
Principal repayments on long term debt	**(16,130)**	(15,089)
	7,631	(306)
Investing		
Deferred capital contributions	**790**	3,701
Proceeds from sale of plant in service	**189**	120
Purchase of capital work in progress	**(18,519)**	(14,405)
Purchase of utility plant in service	**(38,264)**	(47,357)
	(55,804)	(57,941)
Net increase (decrease) in cash and cash equivalents	**133**	(4,409)
Cash and cash equivalents, beginning of year	**51,470**	55,879
Cash and cash equivalents, end of year	**$ 51,603**	$ 51,470

See accompanying notes to the financial statements.

1. Nature of operations

The Halifax Regional Water Commission (the Commission) is a public utility owned and controlled by the Halifax Regional Municipality (HRM). The Commission is responsible for the supply of municipal water, wastewater and stormwater services to the residents of the HRM. The Commission's principal place of business is P.O. Box 8388 Station A, 450 Cowie Hill Road, Halifax, Nova Scotia. The Commission is exempt from income tax.

2. Summary of significant accounting policies

(a) Statement of compliance

The financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB). The principal accounting policies applied in the preparation of these financial statements are set out below. These policies have been consistently applied to all years presented, unless otherwise stated.

The financial statements were authorized for issue by the Board on June 20, 2019.

(b) Basis of measurement

The Commission's financial statements are prepared on the historical cost basis, except for certain financial instruments measured at fair value. The financial statements are presented in Canadian dollars and all values are rounded to the nearest thousand. The financial statements are presented in accordance with International Accounting Standards (IAS) 1 "Presentation of Financial Statements".

(c) Regulation

In matters of administrative policy relating to customers, rates, capital expenditures, depreciation rates and accounting matters, the Commission is subject to the jurisdiction of the Nova Scotia Utility and Review Board (NSUARB). Rates charged to and collected from customers are designed to recover costs of providing the regulated services. Halifax Water is required to prepare submissions in accordance with the Handbook issued by the NSUARB. There are differences in the accounting treatment of certain transactions from IFRS including the accounting of principal debt payments, employee future benefits, depreciation and amortization, and gains and losses on the disposal of plant in service and accumulated surplus.

Regulatory assets represent costs incurred that have been deferred as approved by the NSUARB and will be recovered through future rates collected from customers. The Commission's regulatory asset is disclosed in Note 5.

(d) Utility plant in service

Utility plant in service (Note 12) is recorded at cost, being the purchase price and directly attributable cost of acquisition or construction, including interest capitalized during construction. Contributions for capital expenditures are treated as deferred contributed capital on the statement of financial position and amortized over the estimated useful lives of the assets. Structures and land taken out of service are removed from utility plant in service and placed in plant not in service at cost less accumulated depreciation. Losses or gains related to assets retired, demolished or sold are charged or credited to the statement of earnings.

(e) Cash and cash equivalents

Cash and cash equivalents consists of cash on hand and balances with banks.

(f) Depreciation

Depreciation is provided using the straight-line method over the estimated useful lives of the assets.

The estimated useful lives for the major classifications of utility plant in service are as follows:

Culverts	25 to 50 years
Hydrants	50 to 80 years
Meters	20 to 25 years
Office equipment and furniture and transportation equipment	3 to 10 years
Pumping equipment	5 to 30 years
Purification and treatment equipment	20 to 50 years
SCADA equipment	5 to 25 years
Services and laterals	50 to 60 years
Structures and improvements	50 to 100 years
Tools and work equipment	5 to 30 years
Water, wastewater and stormwater mains	60 to 100 years

Depreciation commences in the year an asset is put in service and ready for its intended use. In the year of acquisition, depreciation is calculated at 50% of the above rates unless a project is significant, in which case depreciation is prorated for the number of months the asset was in use. The Commission does not maintain a depreciation fund. The Commission has received NSUARB approval for exemption from setting up a depreciation fund as long as net depreciable additions to plant exceed the depreciation charged.

(g) Inventory

Cost of inventory is comprised of direct materials and supplies. Inventories are valued at the lower of cost and net realizable value with cost being determined on a weighted average moving cost method.

(h) Revenues and expenditures

All revenues and expenditures are recorded on an accrual basis. Revenues relating to supplying water, wastewater and stormwater services are recorded based on cyclical billings and include an accrual for estimated amounts not yet billed. Fire protection revenue is recorded based on approved rates. Other revenues are recorded at the time services are performed, the amount can be measured reliably and collection is reasonably assured.

(i) Long term debt

Debt issue costs are deferred and amortized over the term of the debt to which it relates.

(j) Use of estimates and critical accounting judgments

In preparing the Commission's financial statements, management is required to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenue and expenditures during the period. Significant estimates and assumptions include the following:

- At year end, revenue from water, stormwater and wastewater services has been earned, but not yet billed due to the timing of the billing cycles. Management estimates the unbilled revenue accrual based on historic billing trends.
- Management assumptions are used in the actuarial determination of employee benefit obligations, such as standard rates of inflation, mortality, discount rates, and anticipation of future salary increases.
- Useful lives of utility plant in service are reviewed at each reporting date based on expected patterns of usage and historical information.
- Recognition and measurement of provisions and contingencies.

Actual results could differ from these estimates.

(k) Financial instruments

Recognition and derecognition
Financial assets and financial liabilities are recognized when the Commission becomes a party to the contractual provisions of the financial instrument. Financial assets are derecognized when the contractual rights to the cash flows from the financial asset expire, or when the financial asset and substantially all the risks and rewards are transferred. A financial liability is derecognized when it is extinguished, discharged, cancelled or expires.

Classification and initial measurement of financial assets
All financial assets are initially measured at fair value and adjusted for transaction costs, where applicable. Financial assets are classified into the following categories: measured at amortized cost, fair value through other comprehensive income ("FVTOCI") and fair value through profit and loss ("FVTPL").

The Commission has classified its financial instruments as follows:

Asset/Liability	Classification
Cash and cash equivalents	Amortized cost
Receivables	Amortized cost
Receivable from HRM	Amortized cost
Payables and accruals	Amortized cost
Long term debt	Amortized cost
Deposits	Amortized cost

The classifcaiton is determined by both the Commission business model for managing the financial asset and the contractual cash flow characteristics of the financial asset.

Subsequent measurement of financial assets
Financial assets are measured at amortized cost if the assets meet the following conditions (and are not designated as FVTPL):

- they are held within a business model whose objective is to hold the financial assets and collect its contractual cash flows
- the contractual terms of the financial assets give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding

After initial recognition, these are measured at amortized cost using the effective interest method. Discounting is omitted where the effect of discounting is immaterial. The Commission's financial assets and liabilities fall into this category. Under IAS 39 cash and receivables were classified as loans and receivables and subsequently measured at amortized cost. Payables, long term debt, and deposits were classified as other financial liabilities and subsequently measured at amortized cost.

Impairment of financial assets
IFRS 9's impairment requirements use more forward-looking information to recognize expected credit losses – the 'expected credit loss (ECL) model'. This replaces IAS 39's 'incurred loss model'. Financial assets that are subject to the expected credit loss model include cash and cash equivalents, receivables, and receivables from HRM. While cash and cash equivalents, and receivables from HRM are subject to the impairment requirements of IFRS 9, the identified impairment loss was immaterial.

Receivables

The Commission makes use of a simplified approach in accounting for receivables and records the loss allowance as lifetime expected credit losses. These are the expected shortfalls in contractual cash flows, considering the potential for default at any point during the life of the financial instrument. In calculating, the Commission uses its historical experience, external indicators and forward-looking information to calculate the expected credit losses using a provision matrix. The Commission assesses impairment of receivables on a collective basis. As they possess shared credit risk characteristics, they have been grouped based on the days past due.

(l) Provisions

A provision is recognized in the statement of financial position when the Commission has a legal or constructive obligation as a result of a past event, and it is probable that an outflow of economic benefits will be required to settle the obligation. If the effect is material, provisions are determined by discounting the expected future cash flows at a rate that reflects current market assessment of the time value of money and, where appropriate, the risks specific to the obligation.

(m) Impairments

At the end of each reporting period, the Commission reviews the carrying amounts of its tangible and intangible assets to determine whether there is an indication of an impairment loss. If any such indication exists, the recoverable amount of the assets is estimated in order to determine the extent of impairment loss (if any). The recoverable amount of any asset is the higher of its fair value less costs to sell and its value in use. Where it is not possible to estimate the recoverable amount of an individual asset, the impairment test is carried out on the asset's cash-generating unit (CGU), which is the lowest group of assets to which the asset belongs for which there are separately identifiable cash inflows that are largely independent of the cash inflows from other assets. The Commission has three CGU's (water, wastewater and stormwater) for which impairment testing is performed.

If the recoverable amount of the asset is estimated to be less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount. An impairment loss is recognized immediately in earnings. When an impairment loss is subsequently reversed, the carrying amount of the assets is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior years.

(n) Intangibles

Intangible assets include land access easements, water removal rights, studies, and capital master plans and are recorded at cost less accumulated amortization. Land rights include payment for easements and right of use over land and have an indefinite useful life. Intangibles with finite useful lives are amortized annually over the estimated useful lives. The expected useful lives are as follows:

Intangible assets	10 to 30 years

(o) Employee benefits obligations

The Commission accrues in its accounts, annually, the estimated liabilities for pensions and other employee benefits.

Pension benefits
The Commission provides employment, post-retirement and pre-retirement benefits through defined benefit plans and defined contribution plans.

The cost of pension benefits for defined contribution pension plans are expensed at the time active employees are compensated.

The defined benefit plans sponsored by the Commission determine the amount of pension benefits employees will receive on retirement by reference to length of service and salary levels. Obligations associated with defined benefit plans reside with the Commission, even if plan assets for funding the plan are set aside.

The liability recognized in the statement of financial position for defined benefit plans is the present value of the defined benefit obligation at the end of the reporting date less the fair value of plan assets.

Management estimates the defined benefit obligation annually with assistance from an independent actuary using the projected unit credit method. The defined benefit obligation uses estimates for inflation, medical cost trends, mortality, and anticipated salary levels. The discount factor used to present value estimated future cash flows is determined with reference to high quality corporate bonds that have terms to maturity approximating the terms of the related pension liability.

Gains and losses resulting from re-measurements of the net defined benefit liability are charged to other comprehensive income in the period in which they arise. Service costs are recognized immediately into earnings.

Net interest cost related to pension obligations and returns on plan assets are included in salary and benefits on the statement of earnings.

Short-term employee benefits
Short-term employee benefit obligations that are due to be settled wholly within twelve months after the end of the annual reporting period in which the employees render the related service are measured on an undiscounted basis and are expensed as the related service is provided.

(p) Regulatory deferral account balance

The Commission early adopted IFRS 14 Regulatory Deferral Accounts and has continued to apply the accounting policies it applied in accordance with the Handbook for the recognition, measurement and impairment of assets and liabilities arising from rate regulation. These are referred to as regulatory deferral account balances.

Explanation of recognized amounts
Regulatory deferral account balances are recognized and measured at cost less amortization. Management continually assesses the likelihood of recovery of regulatory assets. If recovery through future rates is no longer considered probable, the amounts would be charged to the results of operations in the period that the assessment is made.

(q) Future accounting standards

At the date of authorization of these financial statements, certain new IFRS standards, amendments and interpretations to existing standards have been published by the IASB, but are not yet effective and have not been adopted early by the Commission.

Management anticipates that the relevant pronouncements will be adopted in the Commission's accounting policies for the first period beginning after the effective date of the pronouncement. Information on new standards, amendments and interpretations that may be relevant to the Commission's financial statements is provided below.

IFRS 15 Revenue from Contracts with Customers
The IASB released a new standard IFRS 15 Revenue from Contracts with Customers which replaces IAS 18 Revenue, IAS 11 Construction Contracts and certain revenue-related interpretations. The new standard provides a single, principle based five-step model to be applied to all contracts with customers requiring an entity to recognize revenue 1) in a manner that depicts the transfer of goods or services to customers and 2) at an amount that reflects the consideration the entity expects to be entitled to in exchange for those goods or services. IFRS 15 is effective for annual periods beginning on or after January 1, 2018. The Commission has adopted and assessed the impact of the new standard and concluded it is not material to the financial statements.

IFRS 9 Financial Instruments
The IASB has replaced IAS 39 Financial Instruments: Recognition and Measurement in its entirety with a new standard IFRS 9 Financial Instruments. The final version of the standard introduces a new approach to financial asset classification, replaces the "incurred loss" impairment model with a more forward-looking expected loss model and substantially revises hedge accounting.

Management completed their assessment and the Commission has elected to apply the modified retrospective method on transition, which means that comparative periods have not been restated. The Commission adopted IFRS 9 in its financial statements for the annual period beginning April 1, 2018. The adoption of this standard had no financial impact to the Commission.

IFRS 16 Leases
The IASB issued IFRS 16, Leases, which replaces IAS 17, Leases. IFRS 16 provides a single lessee accounting model, requiring the recognition of assets and liabilities for all leases, unless the lease term is twelve months or less or the underlying asset has a low value. Lessor accounting remains largely unchanged from IAS 17. The new standard IFRS 16 is effective for annual periods beginning on or after January 1, 2019. The Commission is currently assessing the impact of this new standard.

3. Contingent liabilities

As a condition of a prior year sale of a property, the Commission indemnified the purchaser from claims or actions resulting from migration of halocarbons. The environmental risk is assessed to be low and the likelihood of any related liability is not determinable.

The Commission has been named along with the contractor for a flooding incident that occurred as a result of an overflow of wastewater at a pumping station associated with the Halifax Harbour Solutions Project (HHSP). The claim is being defended by the Commission's insurer and management believes exposure in this regard is minimal.

There are active claims against the Commission; however, the likelihood of actual liability is not determinable at this time. If the Commission's defense of active claims is unsuccessful, the potential exposure would be $1,000 - $2,000.

4. Employee benefit obligations

Retirement benefit plan – employees transferred from HRM
The Commission is responsible for funding the employer share of the contributions to the HRM pension plan for certain employees that transferred from HRM as of August 1, 2007. HRM administers this defined benefit pension plan and the Commission reimburses HRM for the pension costs related to the Commission's proportionate share of the employees covered under the plan. Due to the nature of the plan, the Commission does not have sufficient information to account for the plan as a defined benefit; therefore, the multiemployer defined benefit plan is accounted for in the same manner as a defined contribution plan. An expense is recorded in the period when the Commission is obligated to make contributions for services rendered by the employee. During 2019, the Commission funded $599 (2018 - $635) in contributions to the plan.

Defined benefit plans and other long term employment benefits
For all other employees, the Commission maintains a defined benefit pension plan and offers post-retirement health and insurance benefits. The pension plan provides pensions based upon length of service and best seven years' earnings. This defined benefit pension plan is funded by employer and employee contributions with employees contributing 10.65% of regular employee earnings. The Commission contributes 13.29% of payroll which includes 9.85% toward current service cost and 3.44% toward going concern special payments.

Employees who retired prior to July 1, 1998 have extended health benefits coverage for life and drug coverage until age 65. Employees who retired after July 1, 1998 and before December 31, 2008 have coverage for drug, extended health, dental and life insurance until age 65 on a 50/50 cost shared basis (100% basis for employees who retired after December 31, 2008). Extended health coverage for these retirees and their spouses after the age of 65 is available on an optional basis at 100% retiree cost and drug coverage is available through the provincially managed drug program.

The Commission also has a non-funded pre-retirement benefit that is accrued annually, but is payable on retirement, termination or death if the employee has at least 10 years of continuous service. The benefit is equal to three days' pay for each completed year of service, up to a maximum of six month's salary and can be taken as a lump sum payment at the date of retirement in lieu of pre-retirement leave.

4. Employee benefit obligations (continued)

Information about the Commission's plans, based on an actuarial extrapolation as at March 31, 2019, is as follows:

	Pension Plan		Post-retirement benefits		Pre-retirement benefits	
	2019	2018	**2019**	2018	**2019**	2018
Change in accrued benefit obligation						
Balance, beginning of year	**$ 187,181**	$ 168,363	**$ 430**	$ 341	**$ 3,983**	$ 3,824
Current service cost	**7,107**	6,112	**-**	-	**344**	339
Interest cost	**6,837**	6,484	**13**	8	**141**	132
Contributions by plan participants	**2,885**	2,725	-	-	-	-
Benefit payments	**(4,534)**	(4,265)	**(60)**	(63)	**(460)**	(227)
Re-measurements – actuarial (gains)/ losses from changes in demographic assumptions	**-**	-	**-**	(42)	**-**	-
Re-measurements – actuarial (gains)/ losses from changes in financial/experience assumptions	**(514)**	7,762	**(3)**	186	**187**	(85)
Balance, end of year	**198,962**	187,181	**380**	430	**4,195**	3,983
Change in fair value of plan assets						
Balance, beginning of year	**121,695**	109,883	**-**	-	**-**	-
Interest income	**4,412**	4,206	**-**	-	**-**	-
Administrative expenses	**(94)**	(69)	**-**	-	**-**	-
Actual return on plan assets	**3,414**	5,952	**-**	-	**-**	-
Benefit payments	**(4,534)**	(4,265)	**(60)**	(63)	**(460)**	(227)
Contributions: Employee	**2,885**	2,725	**-**	-	**-**	-
Employer	**3,429**	3,263	**60**	63	**460**	227
Balance, end of year	**131,207**	121,695	**-**	-	**-**	-
Accrued benefit liability at March 31	**$ 67,755**	$ 65,486	**$ 380**	$ 430	**$ 4,195**	$ 3,983

4. Employee benefit obligations (continued)

Included in the statement of earnings is pension expense of $9,388 (2018 - $8,461).

The significant actuarial assumptions adopted in measuring the Commission's accrued benefit obligations are as follows:

	2019 Pension Plan	2018 Pension Plan	**2019 Post-Retirement Benefits**	2018 Post-Retirement Benefits	**2019 Pre-Retirement Benefit**	2018 Pre-Retirement Benefit
Discount rate	**3.40%**	3.60%	**3.00%**	3.20%	**3.20%**	3.60%
Expected return on plan assets	**3.40%**	3.60%	**N/A**	N/A	**N/A**	N/A
Rate of compensation increase	**3.75%**	3.75%	**N/A**	N/A	**3.75%**	3.75%
Expenses for life benefits as a % of claims	**N/A**	N/A	**10.00%**	10.00%	**N/A**	N/A
Health benefit inflation per year	**N/A**	N/A	**6.60%**	6.92%	**N/A**	N/A
Dental benefit inflation per year	**N/A**	N/A	**4.00%**	4.50%	**N/A**	N/A

The measurement date used to determine the Plan assets and the accrued benefit obligation was March 31, 2019. The most recent valuation was completed January 1, 2019. The next review is scheduled for January 1, 2022.

The estimated employer contributions expected to be paid into the defined benefit plan and supplemental plan for the next fiscal year are $2,894.

5. Regulatory deferral account balance

In 2011, the NSUARB granted the Commission approval to defer depreciation charges on certain assets transferred in 2010 from HRM relating to the Halifax Harbour Solutions Project (HHSP). Depreciation of $2,078 was deferred in each of fiscal 2011 and 2012. As a result, the Commission recognized a $4,156 regulatory deferral account. In absence of rate regulation, this regulatory deferral account balance would have been expensed as depreciation in fiscal 2011 and 2012. In 2012, the NSUARB granted approval of the amortization of this deferral account over the remaining useful lives of the underlying assets, beginning in 2014. The expense recognized in 2019 is $192 (2018 - $192).

	2019	2018
Beginning balance	**$ 3,196**	$ 3,388
Amortization	**(192)**	(192)
Ending balance	**$ 3,004**	$ 3,196

6. Commitments

There is an agreement with HRM for renewal of the dividend/grant in lieu of taxes for fiscal years 2015/16 to 2019/20 for water services. Dividend payments are approved as part of revenue requirements by the NSUARB. There is no dividend/grant in lieu of taxes approved for wastewater/stormwater. The Commission is committed to a payment of $5,078 for the 2020 fiscal year.

At March 31, 2019, the Commission had $118,025 (2018 - $85,728) in expenditures from current and past approved capital budgets not yet expended.

7. Supplemental cash flow information

	2019	2018
Changes in non-cash operating working capital items		
Receivables, customer charges and unbilled	**$ (285)**	$ (3,655)
Payable to/receivable from HRM, net	**1,972**	(1,250)
Inventory	**(615)**	159
Prepaids	**(53)**	(146)
Payables and accruals, trade	**778**	5,925
Accrued interest on long term debt	**21**	(71)
Contractor and customer deposits	**21**	(5)
Unearned revenue	**(77)**	(203)
	$ 1,762	$ 754

Interest paid during the year was $7,430 (2018 - $7,884).

8. Capital management

The Commission's objective when managing capital is to ensure sufficient liquidity to support its financial obligations and execute its operating and capital plans. The Commission monitors and makes adjustments to its capital structure through additional borrowings of long term debt which are used to finance capital projects.

The Commission considers its total capitalization to include all long term debt and total equity. The calculation is set out as follows:

	2019	2018
Long term debt (current portion)	**$ 24,709**	$ 22,630
Long term debt	**182,732**	190,871
Funded debt	**207,441**	213,501
Equity	**183,798**	167,660
Capital under management	**$ 391,239**	$ 381,161

The Commission is a regulated utility and is subject to the regulations of the NSUARB. As part of this regulation, the Commission must obtain approval by the NSUARB for all borrowings. The Commission has obtained regulatory approval for all borrowings during the fiscal year. The Commission is not subject to financial borrowing covenants other than as outlined in Note 10.

9. Financial instruments and risk management

The Commission applies a three-tier hierarchy framework for disclosing fair value of financial instruments, based on whether the inputs into the various valuation techniques are observable or unobservable. Observable techniques reflect market data obtained from independent sources, while unobservable inputs reflect management assumptions. Changes in valuation techniques of financial instruments may result in transfers of assigned levels. The hierarchy of input is as follows:

Level I	Quoted prices in active markets for identical assets or liabilities;
Level II	Inputs other than quoted prices included in Level I that are observable, either directly or indirectly; and
Level III	Inputs that are not based on observable market data.

The carrying values of current assets and current liabilities approximate their fair value due to the relatively short period to maturity of these financial instruments. Loans and receivables are carried at amortized cost. The fair value of variable rate long term debt is assumed to approximate its carrying value. Fair value has been estimated by discounting future cash flows at a rate offered for borrowings of similar maturities and credit quality at year end.

There were no transfers between classes of the fair value hierarchy during the year.

The Commission is exposed to risks as a result of holding financial instruments. Management considers and evaluates those risks on an on-going basis to ensure that the risks are appropriately managed. These potential risks include credit risk, interest risk, market risk and liquidity risk.

Credit risk
Credit risk arises from the possibility that the Commission's customers may experience financial difficulty and be unable to fulfill their obligations. The Commission's maximum exposure to credit risk corresponds to the cash and customer charges and contractual receivables. However, the Commission's customers are numerous and diverse, which reduces the concentration of credit risk.

An analysis of the Commission's receivables and continuity of the Commission's provision for impairment losses on receivables is as follows:

	2019	2018
Receivables		
Customer charges, contractual and unbilled	**$ 36,921**	$ 36,552
Less: allowance for doubtful accounts	**(2,502)**	(2,418)
	$ 34,419	$ 34,134

The credit quality of financial assets that are neither past due nor impaired are assessed with reference to historical information and includes the following considerations; new customers, existing customers and payment patterns / history.

Interest risk
Interest risk arises from the possibility that changes in interest rates will cause the Commission a potential loss. All of the Commission's long term debt is at varying fixed rates and has staggered maturity dates which reduce the interest rate risk.

Market risk
Market risk arises from the possibility that the value of an investment will fluctuate as a result of changes in market prices. These changes could affect the market value of the investments in the Commission's employees' pension plan and consequently the plan's deficit. The risk is mitigated by the pension plan diversifying the types of investments in its portfolio.

Liquidity risk
Liquidity risk arises from the possibility of the Commission not being able to meet its cash requirements in a timely and cost effective manner. The Commission manages this risk by closely monitoring the cash on hand in comparison to upcoming cash commitments.

10. Related party transactions

The immediate parent and ultimate controlling party of the Commission is the HRM.

The Commission is obligated to make payments on debt, held in the name of HRM, associated with wastewater and stormwater assets which were transferred to the Commission in 2007 and subsequent years.

Amounts receivable from and payable to HRM have normal credit terms.

The Commission had the following related party transactions with HRM:

- The Commission recorded revenue for provision of water, wastewater and stormwater services to HRM in the amount of $5,209 (2018 - $5,097).
- The Commission recorded fire protection revenue from HRM of $7,074 (2018 - $7,074).
- The Commission paid a grant in lieu of tax of $4,999 (2018 - $4,774).
- The debt issued by the Commission was covered by a blanket guarantee from HRM subject to the Commission maintaining a debt service ratio of less than 35%.

Compensation of key management personnel

Members of the Board of Commissioners and Executive Management team are deemed to be key management personnel. It is the Board of Commissioners and Executive Management team who have the responsibility for planning, directing and controlling the activities of the Commission.

The following is compensation expense for key management personnel:

	2019	2018
Short term benefits	**$ 1,421**	$ 1,388
Post-employment benefits	**313**	219
Total compensation	**$ 1,734**	$ 1,607

11. Intangible assets

	2019	2018
Cost		
Beginning balance, April 1	**$ 17,888**	$ 13,213
Additions	**2,910**	4,675
Total cost, March 31	**20,798**	17,888
Accumulated amortization		
Beginning balance, April 1	**4,011**	2,938
Amortization	**1,369**	1,073
Total accumulated amortization, March 31	**5,380**	4,011
Net book value	**$ 15,418**	$ 13,877

12. Utility plant in service

	Land	Structures and improvements	Treatment and network equipment	Distribution and collection network	Tools and work equipment	Total
Cost						
Beginning balance, April 1, 2018	$ 21,372	$ 218,876	$ 229,808	$ 862,357	$ 26,080	**$ 1,358,493**
Additions	231	16,739	23,459	33,708	3,610	**77,747**
Disposals	-	-	(2,325)	-	(855)	**(3,180)**
Total cost, March 31, 2019	21,603	235,615	250,942	896,065	28,835	**1,433,060**
Accumulated depreciation						
Beginning balance, April 1, 2018	$ -	$ 43,185	$ 47,080	$ 59,968	$ 7,830	**$ 158,063**
Depreciation	-	9,552	11,725	17,078	3,202	**41,557**
Total accumulated depreciation March 31, 2019	-	52,737	58,805	77,046	11,032	**199,620**
Net book value, March 31, 2019	$ 21,603	$ 182,878	$ 192,137	$ 819,019	$ 17,803	**$ 1,233,440**

	Land	Structures and improvements	Treatment and network equipment	Distribution and collection network	Tools and work equipment	Total
Cost						
Beginning balance, April 1, 2017	$ 20,780	$ 214,875	$ 218,773	$ 787,646	$ 18,322	$ 1,260,396
Additions	592	4,011	11,464	74,724	7,758	98,549
Disposals	-	(10)	(429)	(13)	-	(452)
Total cost, March 31, 2018	21,372	218,876	229,808	862,357	26,080	1,358,493
Accumulated depreciation						
Beginning balance, April 1, 2017	$ -	$ 33,807	$ 34,671	$ 43,744	$ 4,022	$ 116,244
Depreciation	-	9,378	12,409	16,224	3,808	41,819
Total accumulated depreciation March 31, 2018	-	43,185	47,080	59,968	7,830	158,063
Net book value, March 31, 2018	$ 21,372	$ 175,691	$ 182,728	$ 802,389	$ 18,250	$ 1,200,430

13. Long-term debt

	Interest rates	2019	2018
Payable to Municipal Finance Corporation (MFC)			
Water	1.040% to 6.750%	**$ 61,197**	$ 63,181
Halifax Harbour Solutions	0.900% to 4.329%	**7,150**	7,800
Wastewater/stormwater	1.040% to 4.500%	**87,293**	86,209
Stormwater	1.040% to 4.114%	**13,643**	11,723
		169,283	168,913
Payable to Halifax Regional Municipality			
MFC Wastewater/stormwater	1.200% to 4.940%	**39,000**	45,500
		208,283	214,413
Less: debt issue costs		**(842)**	(912)
		207,441	213,501
Less: amount payable within one year		**(24,709)**	(22,630)
		$ 182,732	$ 190,871

The debentures are repayable in fixed annual or semi-annual principal instalments plus interest payable semi-annually. Principal instalments for the next five years are as follows:

2020	$ 24,709
2021	$ 19,034
2022	$ 16,989
2023	$ 41,702
2024	$ 38,381

14. Operating expenditures by nature

	2019	2018
Salaries and benefits	**$ 44,916**	$ 41,948
Training	**728**	618
Contract services	**14,920**	13,619
Electricity	**6,601**	6,323
Operating supplies	**10,979**	9,945
Professional services	**3,945**	4,559
Chemicals	**4,961**	4,698
Depreciation and amortization	**45,736**	43,106
	$ 132,786	$ 124,816

15. Subsequent event

On May 22, 2019 the Collective Agreements that will govern the next five years for Locals 227 and 1431 were approved by the Board. Retroactive payments required have been reflected in the accruals at year end.

Halifax Regional Water Commission
Schedule of utility plant in service
Year ended March 31, 2019 (in thousands)

Schedule A

Water

	Land	Structures and improvements	Pumping equipment	Purification equipment	SCADA equipment	Transmission and distribution mains	Services	Meters	Hydrants	Aerotech and small systems	Tools and work equipment	Total
Cost												
Beginning balance, April 1, 2018												
Cost	$ 16,009	$ 95,326	$ 10,303	$ 25,222	$ 5,171	$ 372,794	$ 37,241	$ 15,582	$ 19,917	$ 9,834	$ 28,124	**$ 635,523**
Additions	231	1,634	200	1,673	436	13,526	2,658	3,530	721	220	1,903	**26,732**
Disposals	-	-	-	-	-	-	-	(2,325)	-	-	(406)	**(2,731)**
Total cost, March 31, 2019	16,240	96,960	10,503	26,895	5,607	386,320	39,899	16,787	20,638	10,054	29,621	**659,524**
Accumulated depreciation												
Beginning balance, April 1, 2018	-	29,560	7,291	16,491	3,860	84,919	6,989	6,075	4,207	3,250	17,395	**180,037**
Depreciation	-	102	285	1,080	193	4,865	657	(988)	317	38	1,620	**8,169**
Total accumulated depreciation, March 31, 2019	-	29,662	7,576	17,571	4,053	89,784	7,646	5,087	4,524	3,288	19,015	**188,206**
Net book value, March 31, 2019	$ 16,240	$ 67,298	$ 2,927	$ 9,324	$ 1,554	$ 296,536	$ 32,253	$ 11,700	$ 16,114	$ 6,766	$ 10,606	**$ 471,318**
Cost												
Beginning balance, April 1, 2017												
Cost	$ 15,417	$ 92,334	$ 9,720	$ 23,771	$ 5,046	$ 350,101	$ 35,633	$ 14,920	$ 19,332	$ 9,564	$ 26,871	**$ 602,709**
Additions	592	2,997	593	1,451	125	22,706	1,608	1,501	585	270	4,001	**36,429**
Disposals	-	(5)	(10)	-	-	(13)	-	(839)	-	-	(2,748)	**(3,615)**
Total cost, March 31, 2018	16,009	95,326	10,303	25,222	5,171	372,794	37,241	15,582	19,917	9,834	28,124	**635,523**
Accumulated depreciation												
Beginning balance, April 1, 2017	-	28,034	7,028	15,478	3,689	80,244	6,377	5,950	3,902	2,922	18,309	**171,933**
Depreciation	-	1,526	263	1,013	171	4,675	612	125	305	328	(914)	**8,104**
Total accumulated depreciation, March 31, 2018	-	29,560	7,291	16,491	3,860	84,919	6,989	6,075	4,207	3,250	17,395	**180,037**
Net book value, March 31, 2018	$ 16,009	$ 65,766	$ 3,012	$ 8,731	$ 1,311	$ 287,875	$ 30,252	$ 9,507	$ 15,710	$ 6,584	$ 10,729	**$ 455,486**

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Utility plant in service under IFRS differs from the Handbook due to exclusion of intangible assets, componentization of certain assets and useful lives for depreciation.

Halifax Regional Water Commission
Schedule of utility plant in service

Schedule A

Year ended March 31, 2019 (in thousands)

Wastewater

	Land	Structures and improvements	Pumping equipment	Treatment equipment	SCADA equipment	Collection system	Laterals	Meters	Tools and work equipment	Aerotech and small systems	Total
Cost											
Beginning balance, April 1, 2018											
Cost	$ 5,329	$ 176,206	$ 20,966	$ 162,499	$ 8,407	$ 319,809	$ 21,898	$ 1,501	$ 32,929	$ 12,564	**$ 762,108**
Additions	-	14,641	501	10,270	2,158	6,525	4,637	3,530	3,898	220	**46,380**
Disposals	-	-	-	-	-	-	-	-	(450)	-	**(450)**
Total cost, March 31, 2019	5,329	190,847	21,467	172,769	10,565	326,334	26,535	5,031	36,377	12,784	**808,038**
Accumulated depreciation											
Beginning balance, April 1, 2018	-	58,016	7,289	55,290	1,869	61,604	1,912	38	13,994	3,893	**203,905**
Depreciation	-	1,822	815	8,413	619	4,485	488	163	2,412	80	**19,297**
Total accumulated depreciation, March 31, 2019	-	59,838	8,104	63,703	2,488	66,089	2,400	201	16,406	3,973	**223,202**
Net book value, March 31, 2019	$ 5,329	$ 131,009	$ 13,363	$ 109,066	$ 8,077	$ 260,245	$ 24,135	4,830	$ 19,971	$ 8,811	**$ 584,836**
Cost											
Beginning balance, April 1, 2017											
Cost	$ 5,329	$ 175,208	$ 17,579	$ 161,122	$ 8,210	$ 290,169	$ 19,108	$ -	$ 25,407	$ 12,089	**$ 714,221**
Additions	-	1,003	3,387	1,377	197	29,640	2,790	1,501	7,665	475	**48,035**
Disposals	-	(5)	-	-	-	-	-	-	(143)	-	**(148)**
Total cost, March 31, 2018	5,329	176,206	20,966	162,499	8,407	319,809	21,898	1,501	32,929	12,564	**762,108**
Accumulated depreciation											
Beginning balance, April 1, 2017	-	53,697	6,577	47,255	1,366	57,418	1,502	-	11,573	3,450	**182,838**
Depreciation	-	4,319	712	8,035	503	4,186	410	38	2,421	443	**21,067**
Total accumulated depreciation, March 31, 2018	-	58,016	7,289	55,290	1,869	61,604	1,912	38	13,994	3,893	**203,905**
Net book value, March 31, 2018	$ 5,329	$ 118,190	$ 13,677	$ 107,209	$ 6,538	$ 258,205	$ 19,986	1,463	$ 18,935	$ 8,671	**$ 558,203**

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Utility plant in service under IFRS differs from the Handbook due to exclusion of intangible assets, componentization of certain assets and useful lives for depreciation.

Halifax Regional Water Commission
Schedule of utility plant in service
Year ended March 31, 2019 (in thousands)

Schedule A

Stormwater

	Structures and improvements	Collection system	Laterals	Tools and work equipment	Total
Cost					
Beginning balance, April 1, 2018					
Cost	$ 9,796	$ 245,447	$ 4,896	$ 3,812	**$ 263,951**
Additions	464	6,212	150	720	**7,546**
Disposals	-	-	-	-	**-**
Total cost, March 31, 2019	10,260	251,659	5,046	4,532	**271,497**
Accumulated depreciation					
Beginning balance, April 1, 2018	1,579	42,269	396	1,347	**45,591**
Depreciation	182	6,104	99	540	**6,925**
Total accumulated depreciation, March 31, 2019	1,761	48,373	495	1,887	**52,516**
Net book value, March 31, 2019	$ 8,499	$ 203,286	$ 4,551	$ 2,645	**$ 218,981**
Cost					
Beginning balance, April 1, 2017					
Cost	$ 9,785	$ 227,751	$ 4,611	$ 3,045	**$ 245,192**
Additions	11	17,696	285	767	**18,759**
Disposals	-	-	-	-	**-**
Total cost, March 31, 2018	9,796	245,447	4,896	3,812	**263,951**
Accumulated depreciation					
Beginning balance, April 1, 2017	1,402	36,380	301	870	**38,953**
Depreciation	177	5,889	95	477	**6,638**
Total accumulated depreciation, March 31, 2018	1,579	42,269	396	1,347	**45,591**
Net book value, March 31, 2018	$ 8,217	$ 203,178	$ 4,500	$ 2,465	**$ 218,360**

During the year, $0 of interest was capitalized to Utility Plant in Service (2018 - $267).

Cumulative utility plant in service	**Water**	**Wastewater**	**Stormwater**	**Total**
Net book value, March 31, 2019	**$ 471,318**	**$ 584,836**	**$ 218,981**	**$ 1,275,135**
Net book value, March 31, 2018	$ 455,486	$ 558,203	$ 218,360	$ 1,232,049

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Utility plant in service under IFRS differs from the Handbook due to exclusion of intangible assets, componentization of certain assets and useful lives for depreciation.

Schedule B

Halifax Regional Water Commission
Schedule of long term debt
Year ended March 31, 2019 (in thousands)

	Interest rate	Final Maturity	Balance Remaining 2019	2018
Payable to Municipal Finance Corporation				
Water				
Debenture 23 A 1	4.250% to 6.125%	2018	**$ -**	$ 600
Debenture 28 A 1	6.500% to 6.750%	2018	**-**	1,100
Debenture 98 A 1	3.750% to 5.088%	2019	**-**	3,671
Debenture 29 A 1	0.900% to 4.329%	2019	**225**	450
Debenture 30 A 1	1.550% to 3.870%	2020	**350**	525
Debenture 31 A 1	1.630% to 4.221%	2021	**450**	600
Debenture 32 A 1	1.636% to 3.480%	2022	**800**	1,000
Debenture 32 C 1	1.510% to 3.160%	2022	**7,514**	8,051
Debenture 33 A 1	1.330% to 3.489%	2023	**7,584**	8,090
Debenture 33 B 1	1.285% to 4.114%	2023	**5,559**	5,930
Debenture 34 B 1	1.200% to 3.190%	2024	**10,938**	11,622
Debenture 35 B 1	1.040% to 2.894%	2025	**11,447**	12,120
Debenture 36 A 1	1.150% to 2.925%	2026	**1,600**	1,800
Debenture 36 B 1	1.150% to 2.506%	2026	**3,905**	4,122
Debenture 37 A 1	1.734% to 3.073%	2027	**3,325**	3,500
Debenture 38 A 1	2.060% to 3.300%	2028	**1,500**	-
Debenture 38 B 1	2.490% to 3.389%	2028	**6,000**	-
Halifax Harbour Solutions				
Debenture 29 A 1	0.900% to 4.329%	2019	**7,150**	7,800
Wastewater/stormwater				
Debenture 30 A 1	1.510% to 4.500%	2020	**2,040**	2,210
Debenture 32 A 1	1.636% to 3.480%	2022	**1,678**	1,797
Debenture 32 B 1	1.380% to 3.156%	2022	**22,400**	24,000
Debenture 32 C 1	1.510% to 3.160%	2022	**3,217**	3,447
Debenture 33 A 1	1.330% to 3.489%	2023	**12,645**	13,488
Debenture 33 B 1	1.285% to 4.114%	2023	**8,170**	8,714
Debenture 34 A 1	1.245% to 3.347%	2024	**4,455**	4,734
Debenture 34 B 1	1.200% to 3.190%	2024	**6,869**	7,298
Debenture 35 B 1	1.040% to 2.894%	2025	**11,993**	12,699
Debenture 36 B 1	1.150% to 2.506%	2026	**1,631**	1,722
Debenture 37 A 1	1.735% to 3.073%	2027	**5,795**	6,100
Debenture 38 B 1	2.490% to 3.389%	2028	**6,400**	-
Stormwater				
Debenture 33 A 1	1.330% to 3.489%	2023	**405**	432
Debenture 33 B 1	1.285% to 4.114%	2023	**1,979**	2,111
Debenture 34 B 1	1.200% to 3.190%	2024	**4,722**	5,017
Debenture 35 B 1	1.040% to 2.894%	2025	**2,746**	2,907
Debenture 36 B 1	1.150% to 2.506%	2026	**811**	856
Debenture 37 A 1	1.734% to 3.073%	2027	**380**	400
Debenture 38 B 1	2.490% to 3.389%	2028	**2,600**	-
			169,283	168,913
Payable to Halifax Regional Municipality				
Municipal Finance Corporation – Wastewater/stormwater				
Debenture 24 B 1	2.840% to 5.940%	2024	**33,000**	38,500
Debenture 34 B 1	1.200% to 3.190%	2024	**6,000**	7,000
			39,000	45,500
			208,283	214,413
Less: debt issue costs			**(842)**	(912)
			207,441	213,501
Less: amount payable within one year			**(24,709)**	(22,630)
			$ **182,732**	$ 190,871

The debentures are repayable in fixed annual or semi-annual principal instalments plus interest payable semi-annually. Principal instalments for the next five years are as follows:

2020	$ 24,709
2021	$ 19,034
2022	$ 16,989
2023	$ 41,702
2024	$ 38,381

Halifax Regional Water Commission
Schedule of operations for water service
Year ended March 31, 2019 (in thousands)

Schedule C

	2019	2018
Operating revenues		
Water service	**$ 48,040**	$ 47,220
Fire protection	**7,074**	7,074
Private fire protection services	**869**	856
Other operating revenue		
Bulk water stations	**227**	304
Customer late payment fees	**244**	220
Miscellaneous	**98**	176
	56,552	55,850
Operating expenditures		
Water supply and treatment	**9,767**	8,645
Water transmission and distribution	**10,903**	9,410
Engineering and information services	**3,749**	3,850
Regulatory services	**679**	496
Customer service	**2,524**	2,348
Administration and pension	**7,153**	6,910
Depreciation	**9,046**	8,550
	43,821	40,209
Earnings from operations before financial and other revenues and expenditures	**12,731**	15,641
Financial and other revenues		
Interest	**521**	313
Other	**559**	485
	1,080	798
Financial and other expenditures		
Interest on long term debt	**1,924**	2,131
Repayment of long term debt	**7,181**	8,247
Amortization of debt discount	**85**	94
Grant in lieu of taxes	**4,999**	4,774
Other	**24**	149
	14,213	15,395
(Loss) earnings for the year	**$ (402)**	$ 1,044

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Schedule D

Halifax Regional Water Commission
Schedule of operations for wastewater service
Year ended March 31, 2019 (in thousands)

	2019	2018
Operating revenues		
Wastewater service	$ 69,901	$ 69,994
Other operating revenue		
Leachate and other contract revenue	417	417
Septage tipping fees	764	812
Over strength surcharge	75	219
Customer late payment fees	186	169
Miscellaneous	538	471
	71,881	72,082
Operating expenditures		
Wastewater collection	13,125	12,644
Wastewater treatment	19,999	19,647
Engineering and information services	3,783	3,419
Regulatory services	886	929
Customer service	2,057	2,270
Administration and pension	5,859	4,853
Depreciation	12,986	11,905
	58,695	55,667
Earnings from operations before financial and other revenues and expenditures	13,186	16,415
Financial and other revenues		
Interest	520	311
Other	183	3,307
	703	3,618
Financial and other expenditures		
Interest on long term debt	4,939	5,185
Repayment of long term debt	12,015	11,747
Amortization of debt discount	103	98
Other	21	120
	17,078	17,150
(Loss) earnings for the year	$ (3,189)	$ 2,883

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Halifax Regional Water Commission
Schedule of operations for stormwater service
Year ended March 31, 2019 (in thousands)

Schedule E

	2019	2018
Operating revenues		
Stormwater site generated service	**$ 5,906**	$ 6,169
Stormwater right-of-way service	**3,835**	3,847
Other operating revenue		
Customer late payment fees	**118**	93
Miscellaneous	**120**	105
	9,979	10,214
Operating expenditures		
Stormwater collection	**4,950**	4,842
Engineering and information services	**624**	556
Regulatory services	**1,587**	1,304
Customer service	**335**	278
Administration and pension	**953**	789
Depreciation	**974**	807
	9,423	8,576
Earnings from operations before financial and other revenue and expenditures	**556**	1,638
Financial and other revenues		
Investment income	**116**	70
Financial and other expenditures		
Interest on long term debt	**567**	568
Repayment of long term debt	**1,320**	1,253
Amortization of debt discount	**11**	10
	1,898	1,831
Loss for the year	**$ (1,226)**	$ (123)

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Schedule F

Halifax Regional Water Commission
Schedule of regulated activities
Year ended March 31, 2019 (in thousands)

	2019	2018
Operating revenues		
Water service	**$ 48,040**	$ 47,220
Wastewater service	**69,901**	69,994
Stormwater service	**9,741**	10,016
Public fire protection	**7,074**	7,074
Private fire protection services	**869**	856
Other operating revenue	**1,216**	1,230
	136,841	136,390
Operating expenditures		
Water supply and treatment	**11,009**	9,802
Water transmission and distribution	**12,402**	10,810
Wastewater collection	**11,643**	11,252
Stormwater collection	**4,901**	4,793
Wastewater treatment	**18,197**	18,054
Engineering and information services	**8,156**	7,265
Regulatory services	**3,152**	3,291
Customer service	**4,881**	4,861
Administration and pension	**13,921**	12,501
Depreciation	**22,989**	21,241
	111,251	103,870
Earnings from operations before financial and other revenues and expenditures	**25,590**	32,520
Financial and other revenues		
Interest	**1,157**	694
Other	**213**	3,096
	1,370	3,790
Financial and other expenditures		
Interest on long term debt	**7,430**	7,884
Repayment of long term debt	**20,516**	21,247
Amortization of debt discount	**199**	202
Grant in lieu of taxes	**4,999**	4,774
	33,144	34,107
(Loss) earnings for the year	**$ (6,184)**	$ 2,203

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Halifax Regional Water Commission
Schedule of unregulated activities

Schedule F

Year ended March 31, 2019 (in thousands)

	2019	2018
Operating revenues		
Dewatering	**$ 210**	$ 210
Septage tipping fees	**764**	812
Leachate treatment and contract revenue	**417**	417
Airplane effluent	**143**	121
Other operating revenue	**203**	196
	1,737	1,756
Operating expenditures		
Water supply and treatment	**21**	18
Wastewater treatment	**572**	456
Other	**78**	87
Depreciation	**18**	21
	689	582
Earnings from operations before financial and other revenues and expenditures	**1,048**	1,174
Financial and other revenues		
Other	**364**	696
Financial and other expenditures		
Other	**45**	269
Earnings for the year	**$ 1,367**	$ 1,601

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Schedule G

Halifax Regional Water Commission
Nova Scotia Utility and Review Board

Year ended March 31, 2019 (in thousands)

Return on rate base	**2019**	2018
Rate of return on rate base for water service	2.38**%**	3.39%
Rate of return on rate base for wastewater service	4.29**%**	5.65%
Rate of return on rate base for stormwater service	1.38**%**	3.45%

Special purpose reserves

	Wastewater & Stormwater Reserves	RDC Water Reserve	RDC Wastewater Reserve	Other Capital Reserves	**2019 Total**	2018 Total
Reserve, beginning of year	$ 3,606	$ 2,332	$ 21,917	$ 6	**$ 27,861**	$ 16,912
Contributions and interest	-	888	12,801	-	**13,689**	11,162
Expenditures	-	-	-	202	**202**	(213)
Reserve, end of year	$ 3,606	$ 3,220	$ 34,718	$ 208	**$ 41,752**	$ 27,861

Summarized consolidated operating results	**Actual 2019**	Actual 2018
Operating revenues	**$ 138,413**	$ 138,145
Operating expenditures	**106,731**	99,437
Earnings from operations before financial and other revenues and expenditures	**31,682**	38,708
Non-operating revenues	**1,898**	4,486
Non-operating expenditures	**33,190**	34,376
Earnings for the year	**$ 390**	$ 8,818

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

STRAIGHT from the SOURCE

Halifax Water

Halifax Water Compliance Statement
Quarterly Certification

For the period of April 1, 2019 to June 30, 2019

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.

Original Signed By:

Cathie O'Toole
General Manager

Original Signed By:

Louis De Montbrun
Director of Corporate Services/CFO

Dated:

September 20, 2019

Halifax Water Compliance Statement
Quarterly Certification
Appendix

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 HRWC

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

Halifax Regional Water Commission

ITEM #6-I

HRWC Board

September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 16, 2019

SUBJECT: **HRM Pension Plan Investment Performance Second Quarter, 2019**

INFORMATION REPORT

ORIGIN

The Pension Plan investment performance is reported to the Commission periodically throughout the year.

BACKGROUND

None

DISCUSSION

The tables below and the attached Investment Report provide a performance update for the Second Quarter of 2019 (April to June) for the Halifax Regional Municipality (HRM) Pension Plan Master Trust, of which Halifax Regional Water Commission (HRWC) is a part. The fair value of the investment in the Master Trust is determined and updated at year-end, and HRWC's share of the total HRM Master Trust at December 31, 2018 was 6.2%, totaling $126.4 million.

The total fund returned 1.22% in the Second Quarter, which underperformed the policy benchmark of 1.64% by 0.42%. The return for the one year period ended June 30, 2019 is 6.27%, outperforming the policy benchmark of 5.07% by 1.20%. Other historical returns are provided in Table 1 below.

Table 1 – Returns (expressed as a percentage), for the period ended June 30, 2019

	Current Quarter (Apr to Jun)	1 - Year	3 - Year Annualized	4 - Year Annualized	Since Inception (Oct 1999)
Fund Return	1.22	6.27	8.57	7.40	7.09
Policy Benchmark	1.64	5.07	6.89	5.74	5.66
Excess Return	(0.42)	1.20	1.68	1.66	1.43

The total fund return is subject to investment management fees and plan expenses. The HRM Pension Plan performs an analysis with respect to the Master Trust to show the potential downside return risk under different scenarios. The four (4) most recent scenarios analyzed showing the greatest potential risk, are identified in Table 2 below:

Table 2 – Stress Testing (expressed as a percentage), as at June 30, 2019

Scenario:	Projected Return of Master Trust
Equities down by 5%	(2.22)
CAD increasing by 10% compared to the USD	0.20
US interest rates decreasing by 0.25%	(0.88)
Oil prices dropping 10%	(0.39)

As at June 30, 2019, the Master Trust was in compliance with the Statement of Investment Policies and Procedures (SIP&P), and a summary of the asset mix is provided in Table 3 below:

Table 3 – Asset Mix (expressed as a percentage)

Asset:	Actual	Policy
Cash & Equivalents	0.30	0.00
Canadian Equity	4.80	5.30
Global Equity	31.70	29.40
Bonds	28.60	33.40
Minimum Target Return	34.60	31.90

ATTACHMENT

Halifax Regional Municipality Pension Plan Investment Report Second Quarter, 2019

Report Prepared by: *Original Signed By:*
Michelle Bennett, B.Comm, Accountant, (902) 490-5242

Consent Agenda Item 1

HRM PENSION PLAN

Investment Report

Q2 2019

Executive Summary

Compliance

- As at June 30, 2019, the Master Trust (MT) was in compliance with the SIP&P.

Funded Status

- As at December 31, 2018, the going concern funded ratio and transfer ratio were 93.1% and 64.2% respectively.*

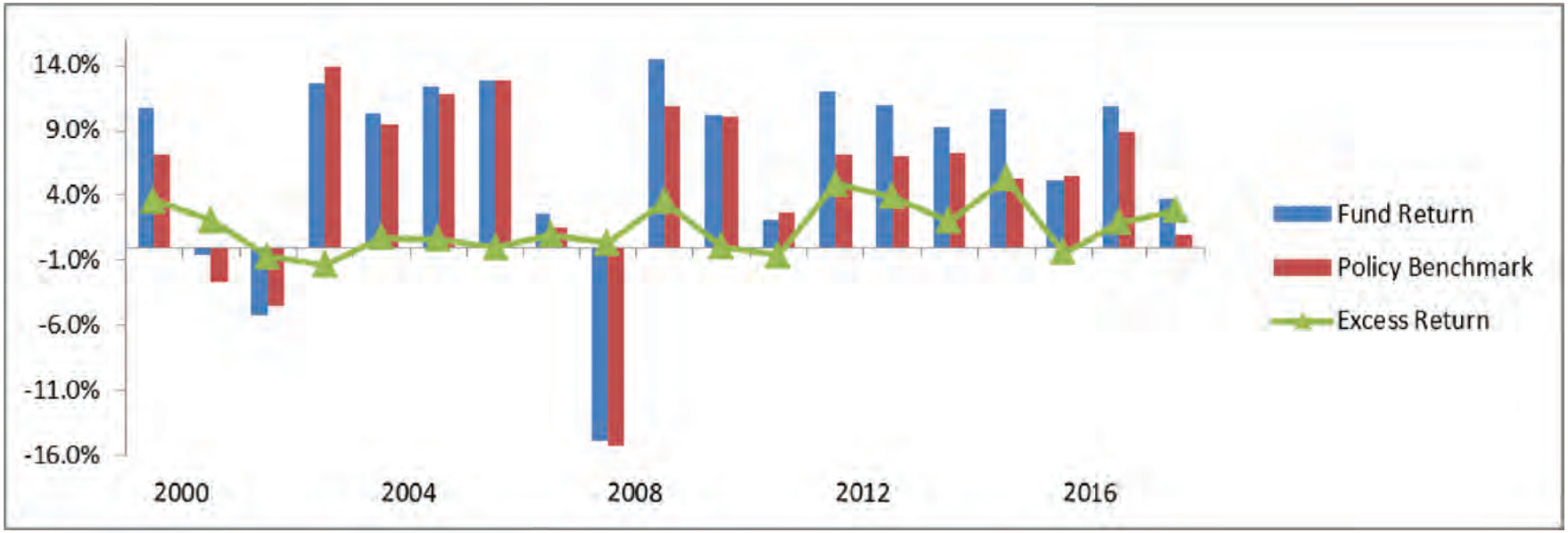
Master Trust Performance (net of fees)

- In Q2, the MT earned 1.22%, underperforming the policy benchmark return by 0.42%.
- For the one-year period ending June 30, 2019, the MT earned 6.27% outperforming the policy benchmark by 1.20%.
- The MT earned an annualized return of 7.40% over the 4-year period ending June 30, 2019, outperforming the policy benchmark by 1.66% annualized.
- Since inception (October 1999), the MT earned 7.09% annualized, outperforming the Plan's long-term rate objective of 6.20%. The table on the next slide summarizes the calendar year returns for the MT.

*Per Eckler Valuation Report as at December 31, 2018. Assumes a going concern discount rate of 6.10%. This discount rate will be reflected in performance reporting starting in Q3 2019.

Executive Summary – Cont.

Calendar Returns
(net of fees)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fund Return	10.71%	-0.56%	-5.21%	12.60%	10.27%	12.38%	12.88%	2.60%	-14.83%	14.47%	10.12%	2.11%	12.01%	10.94%	9.27%	10.59%	5.13%	10.85%	3.81%
Policy Benchmark	7.12%	-2.64%	-4.50%	13.91%	9.50%	11.76%	12.85%	1.58%	-15.20%	10.92%	10.08%	2.71%	7.12%	7.01%	7.24%	5.27%	5.55%	8.91%	0.96%
Excess Return	3.59%	2.08%	-0.71%	-1.31%	0.77%	0.62%	0.03%	1.02%	0.37%	3.55%	0.04%	-0.60%	4.89%	3.93%	2.03%	5.32%	-0.42%	1.94%	2.85%

Executive Summary – Cont.

Added Value

- In Q2 of 2019, the MT underperformed its policy benchmark by 0.42%. Attribution: US Equity +0.18%, Global Credit +0.08%, Emerging Market Equity +0.08%, Canadian Equity +0.07%, EAFE Equity +0.03%, World Equity -0.06%, Universe Bonds -0.13% and Minimum Target Return -0.67%.

Q2 Updates

- Committed USD 15mn to a US real estate fund focused on value-add opportunities.
- Committed CAD 15mn to a Canadian real estate fund focused on multi-residential properties.
- Co-invested USD 2mn in a clean label, high protein cheese snack brand alongside a private equity manager.
- Co-invested USD 2mn in a large independent communication infrastructure company alongside an infrastructure manager.
- Post Q2: Rebalanced asset mix with CAD 38mn from global equities to fixed income (across all bond mandates)

Total Fund Net Returns

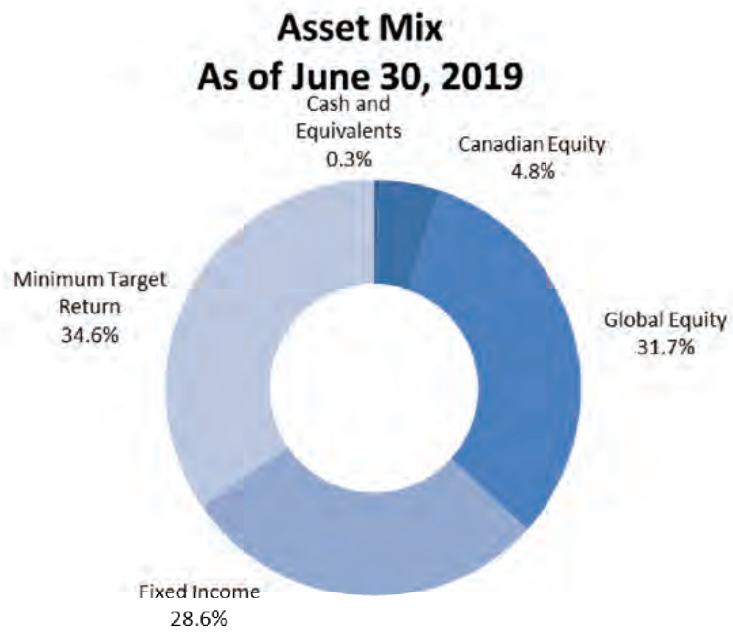
As of June 30, 2019

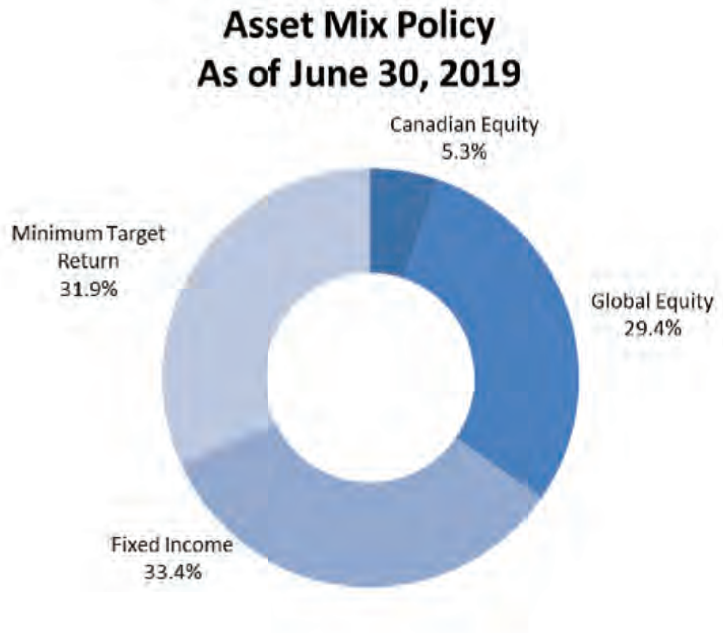
	Q2	1-Year	3-Year Annualized	4-Year Annualized	Since Inception (Oct 1999)
Fund Return	1.22%	6.27%	8.57%	7.40%	7.09%
Policy Benchmark*	1.64%	5.07%	6.89%	5.74%	5.66%
Excess Return	-0.42%	1.20%	1.68%	1.66%	1.43%

*Effective June 30, 2019, the Policy Benchmark is 3.3% S&P/TSX Index + 2.0% S&P/TSX 60 + 4.9% S&P 500 Index ($USD) + 8.3% MSCI EAFE Index ($CAN) + 4.1% MSCI Emerging Markets ($CAN) + 12.1% MSCI World ($CAN) +15.4% FTSE TMX Canada Universe Bond + 18.0% 3 Month Bankers Acceptance + 31.9% Minimum Target Return.

Fund returns are shown net of fees and expenses

Asset Mix





*Effective June 30, 2019, the Policy Benchmark is 3.3% S&P/TSX Index + 2.0% S&P/TSX 60 + 4.9% S&P 500 Index ($USD) + 8.3% MSCI EAFE Index ($CAN) + 4.1% MSCI Emerging Markets ($CAN) + 12.1% MSCI World ($CAN) +15.4% FTSE TMX Canada Universe Bond + 18.0% 3 Month Bankers Acceptance + 31.9% Minimum Target Return.

Equity Market Index Returns

As of June 30, 2019

Index	Q2	1-Year	3-Year Annualized	4-Year Annualized
Canadian Equity (S&P/TSX Composite Index)	2.58%	3.87%	8.39%	6.18%
US Equity (S&P 500 C$)	2.02%	9.69%	14.42%	12.83%
US Equity (S&P 500 U$)	4.30%	10.42%	14.19%	11.55%
EAFE Equity (MSCI EAFE C$)	1.41%	0.41%	9.33%	5.13%
Emerging Markets (MSCI EM C$)	-1.59%	0.54%	10.89%	5.68%
World Equity (MSCI World C$)	1.73%	5.63%	12.00%	9.18%

*Source: Northern Trust

In the second quarter:

- US equities achieved a new record high due to dovish stance on interest rates from the Federal Reserve and indications of progress in trade tensions with China.
- Canada is one of the top-performing equity markets with materials, industrials and consumer discretionary sectors leading the charge.
- Emerging markets underperformed world equities.

Equity – Q2 Summary

- The MT's Equity portfolio returned 2.25% during the quarter, outperforming the equity policy benchmark return of 1.78% by 0.47%, primarily due to outperforming US and Emerging Markets equities.

As of June 30, 2019

MT Equity	Q2	Benchmark	Relative Performance
Canadian Equity (S&P/TSX Composite Index)**	3.80%	2.73%	1.07%
US Equity (S&P 500)	6.20%	4.30%	1.90%
EAFE Equity (MSCI EAFE)	1.60%	1.41%	0.19%
Emerging Markets (MSCI EM)	-0.25%	-1.59%	1.34%
World Equity (MSCI World)	1.45%	1.73%	-0.28%
MT Equity Total	**2.25%**	**1.78%**	**0.47%**

*Source: Northern Trust
**Canadian Equity is a blended index of S&P TSX 60 and S&P/TSX Composite

Bond Market Index Returns

As of June 30, 2019

Index	Q2	1-Year	3-Year Annualized	4-Year Annualized
Canadian Universe Bonds (FTSE TMX Canada Universe Bond)	2.51%	7.37%	2.66%	3.30%
Canadian Government Bonds (FTSE TMX Canada Universe Government)	2.44%	7.41%	2.29%	3.09%
Canadian Corporate Bonds (FTSE TMX Canada Universe Corporate)	2.68%	7.24%	3.65%	3.86%

- Corporate bonds have outperformed Government bonds and the broader Universe over Q2, 3-year and 4-year periods.
- Government bonds have outperformed Corporate bonds and the broader Universe over the 1-year period.
- In Q2, yields declined to 15 bps in Canada and credit spreads also continued to tighten on increased investor confidence towards risk assets and the search for yield given the low interest rate environment.

Fixed Income – Q2 Summary

- The MT's diversified Fixed Income portfolio earned 1.28%, which underperformed its benchmark return of 1.43% by 0.15%.

As of June 30, 2019

MT Fixed Income	Q2	Benchmark	Relative Performance
Canadian Corporate Bond	1.46%	2.68%	-1.22%
Government Bond	2.50%	2.44%	0.06%
Global Credit Absolute Return	0.59%	0.50%	0.09%
MT Fixed Income Total	**1.28%**	**1.43%**	**-0.15%**

*Source: Northern Trust

- Weak performance by our Canadian corporate bond portfolios decreased returns relative to the overall fixed income benchmark.

MTR – Summary

- The Minimum Target Return portfolio (private investment portfolio) returned 0.42% in Q2, versus a benchmark of 1.52%, underperforming by 1.10%.

As of June 30, 2019

	Q2	1-Year	3-Year Annualized	4-Year Annualized	Since Inception (Oct 1999)
MTR Return	0.42%	10.45%	11.80%	10.98%	12.63%
Policy Benchmark	1.52%	6.20%	6.32%	6.38%	6.52%
Excess Return	-1.10%	4.25%	5.48%	4.60%	6.11%

The policy benchmark for the private investment portfolio is the Going Concern Discount rate. The 2019 and 2018 rate is 6.2%, 2017 is 6.4%, 2016 is 6.5%, 2015 is 6.55%, 2014 is 6.5%, 2013 is 6.25%, 2007-2012 is 6.75% and prior to 2007 is 7.4% respectively.

Stress Testing

Scenario Analysis

- Of the scenarios we analyze, the four that show the greatest potential downside return risk to the Master Trust include:

As of June 30, 2019

Scenario	Projected Return of Master Trust
Equities down 5%	-2.22%
CAD decrease by 10% vs USD	0.20%
US interest rates increase by 0.25%	-0.88%
Oil price drops by 10%	-0.39%

Liquidity

	Estimated 2019 Amounts ($ mln)
Contributions**	$ 87.1
Dividend & Distribution Income	$ 19.7
Interest Income	$ 12.3
Other Income	$ 0.3
Benefit Payments**	-$ 106.5
Expenses	-$ 6.1
Total Annual Net CF	**$ 6.8**
Liquid Investments*	$ 1,313.2
Actual Net Distributions	$ 38.0
Projected Net Distributions	$ 60.0
Actual Net Capital Calls	-$ 64.0
Projected Net Capital Calls	-$ 40.0
Total CF + Liquid Investments + Private Sales – Capital Calls	**$ 1,314.0**

** Liquid investments as at August 16, 2019. Includes all publicly traded equity and fixed income investments*

*** Contributions are derived from the Contribution Planner filed with Northern Trust. Benefits are based on monthly average January to June 2019 with a conservative estimate for lump sum payments*

**** Income and expense estimates based on actual amounts from January to June 2019, annualized for full year*

Halifax Water
Halifax Regional Water Commission

ITEM # 7-I
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 17, 2019

SUBJECT: **Halifax Regional Water Commission Employees' Pension Plan Financial Report – Second Quarter, 2019**

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 for Second Quarter (January 1 to June 30, 2019). Favourable or unfavourable variances reported compare actual results to prorated budget amounts (50% = 6 months/12 months) for the six (6) month period in 2019. Year end audited results for 2017 and 2018 are shown for comparative purposes.

As shown on the statement of changes in net assets available for benefits, net assets available for benefits have increased by $6.7 million for the six (6) month period ending June 30, 2019. The annual budget for 2019 forecasted an increase in net assets available of $6.1 million. Actual results for the period of $6.7 million compared to the prorated budget of $3.1 million results in a favourable variance in the amount of $3.6 million.

The annual budget forecasted revenue of $4.4 million. Revenue for the period totaled $6.5 million, which when compared to the prorated budget of $2.2 million results in a favourable variance of $4.3 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 to the actual increase in the fair value of the investment assets which was higher than expected. The increase for the period totaled $5.1 million compared to the prorated budget of $1.0 million, a difference of $4.1 million or 408%. Investment income for the period performed above expectations, showing a favorable variance of $0.3 million or 22%.

Contributions of $2.9 million are tracking lower than expected, down $0.4 million compared to the prorated budget. This is attributed to the elimination sponsor contributions associated with the unfunded liability, as described below. An Actuarial Valuation was performed on the Plan as at January 1, 2019, which reported changes with respect to funding policy for the Plan, effective January 1, 2019 as follows:

- The proposed combined current service rates will increase slightly to 20.68% from 20.50%. Participants' contributions in 2019 are proposed at 10.34% of pensionable earnings, which will be matched by the Plan sponsor. Prior to January 1, 2019 participants' contributions were 10.65%, with the Plan sponsor matching up to 9.85%.

- Required unfunded liability special payment of $825,500 annually by the Plan sponsor, identified in the January 1, 2016 Actuarial Valuation, will no longer be required as a result of the Plan reporting an actuarial surplus on a going concern basis.

Expenses of $2.7 million for the period are higher than the prorated budget of $2.4 million resulting in an unfavourable variance of $0.3 million or 11%. The main contributor to this unfavourable variance is termination benefit payments of $0.6 million for the year to date, which came in considerably higher than the benchmark of $0.4 million. The remainder of the variance is due to the timing of administrative expenses.

SERVICE STANDARDS

Tracking of Regulatory Filing Requirements, Administrative Reporting Requirements and Service Standards for actuarial calculation requests is ongoing. The reports for Regulatory Filing Requirements and Administrative Reporting Requirements are attached

as Appendix B and Appendix C respectively, and document administrative compliance within the various levels of reporting for the period.

Service standard results to June 30, 2019 have been attached as Appendix D. The intent of the service standards report is to set a standard number of days for which calculations can be provided to members when actuarial calculations are requested. The service standard includes both estimated number of days required by the current actuarial services provider, Eckler Partners Ltd., and estimated Halifax Water staff time.

The overall results outlined for Second Quarter as reported in Appendix D show that out of 11 requests, none were delivered within the standard days proposed under the threshold limits. Response time of the actuary remains inconsistent ranging from 5 - 27 days and is high compared to the service standard of 11 days for the categories reported. For the actuary, average service days for Retirement Estimates and Termination Estimates (standard) were 17 days and 21 days respectively. Likewise, for administrative staff, response time ranged from 12 – 59 days compared to the benchmark of 7 days for the categories reported, with an average response time of 28 days for Retirement Estimates, and 16 days for Termination Estimates (standard). It is important to note that the urgency of requests is considered by administrative staff and thus requests may be set aside while other tasks take priority.

Results will continue to be monitored and evaluated over the coming months to obtain a larger data sample with service standards being adjusted if necessary, to reflect the realities and special circumstances factoring into processing member requests. Staff is working with the actuaries to ensure timely responses to calculation requests, and adherence to established service standards.

ATTACHMENTS

APPENDIX A – Financial Report:
Statement of changes in net assets available for benefits, for the six (6) month period ended June 30, 2019.

APPENDIX B – Regulatory Filing Requirements – 2019

APPENDIX C – Administrative Reporting Requirements – 2019

APPENDIX D – Service Standards Report - 2019

Report Prepared by: *Original Signed By:*
Michelle Bennett, B.Comm, Accountant, (902) 490-5242
Heather Britten, B.Comm, Quality Assurance Officer, (902) 490-1895

Halifax Regional Water Commission Employees' Pension Plan
Statement of changes in net assets available for benefits
For the six (6) month period ended

	June 30, 2019						
				Variance			
			Prorated	Actual versus Prorated Budget			
	2019		Budget	Favourable (Unfavourable)		Actual[1]	
	Budget	Actual	50%	$	%	2018	2017
Revenue							
Net investment income:							
Total investment income	$2,530,000	$1,538,942	*$1,265,000*	*$273,942*	*22*	$2,939,026	$2,622,024
Investment manager fees	($160,000)	($110,167)	*($80,000)*	*($30,167)*	*38*	($165,670)	($146,420)
Increase (decrease) in the fair value of investment assets	$2,000,000	$5,079,882	*$1,000,000*	*$4,079,882*	*408*	$1,763,098	$8,712,459
	$4,370,000	**$6,508,657**	*$2,185,000*	*$4,323,657*	*198*	**$4,536,454**	**$11,188,063**
Contributions							
Participants:							
Current service (including Additional Voluntary Contributions)	$3,028,000	$1,507,112	*$1,514,000*	*($6,888)*	*(0)*	$2,845,791	$2,665,078
Sponsors:							
Current service	$2,745,000	$1,363,823	*$1,372,500*	*($8,677)*	*(1)*	$2,578,842	$2,422,527
Unfunded liability	$825,000	$0	*$412,500*	*($412,500)*	*(100)*	$825,200	$825,200
	$6,598,000	**$2,870,935**	*$3,299,000*	*($428,065)*	*(13)*	**$6,249,833**	**$5,912,805**
Expenses[2]							
Benefit payments:							
Benefit payments	$3,959,000	$2,054,989	*$1,979,500*	*($75,489)*	*(4)*	$3,848,218	$3,738,659
Termination payments	$700,000	$584,008	*$350,000*	*($234,008)*	*(67)*	$79,849	$314,591
Death benefit payments	$0	$0	*$0*	*$0*	*n/a*	$0	$242,767
Administrative:							
Actuarial & consulting fees	$130,000	$14,322	*$65,000*	*$50,678*	*78*	$50,409	$67,394
Audit & accounting fees	$9,000	$3,450	*$4,500*	*$1,050*	*23*	$8,441	$9,283
Bank custodian fees	$25,000	$13,319	*$12,500*	*($819)*	*(7)*	$32,303	$20,132
Insurance	$9,000	$8,347	*$4,500*	*($3,847)*	*(85)*	$8,347	$8,347
Miscellaneous	$15,000	$13,135	*$7,500*	*($5,635)*	*(75)*	$16,195	$18,965
Professional fees	$14,000	$12,726	*$7,000*	*($5,726)*	*(82)*	$13,440	$14,623
Registration fees	$3,000	$0	*$1,500*	*$1,500*	*100*	$2,337	$2,221
Training (Trustees/ Administration/ Pension Committee)	$1,000	$0	*$500*	*$500*	*100*	$0	$0
	$4,865,000	**$2,704,296**	*$2,432,500*	*($271,796)*	*(11)*	**$4,059,539**	**$4,436,982**
Increase (decrease) in net assets available for benefits	**$6,103,000**	**$6,675,296**	*$3,051,500*	*$3,623,796*	*119*	**$6,726,748**	**$12,663,886**
Net assets available for benefits, beginning of period	**$122,964,705**	**$126,458,630**				**$119,731,882**	**$107,067,996**
Increase (decrease) in net assets available for benefits	**$6,103,000**	**$6,675,296**				**$6,726,748**	**$12,663,886**
Net assets available for benefits, end of period	**$129,067,705**	**$133,133,926**				**$126,458,630**	**$119,731,882**

1 *Audited results for the years ending December 31*

2 *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 - 2019
as at June 30, 2019

	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	September 5, 2019	DB Plan	Filed directly with the Trustee, Northern Trust, for the DB Plan. A revised Form 3 was filed with the trustee to reflect union contract settlement and actuarial valuation results affecting special payments.
				February 11, 2019	DC Plan	Filed directly with the Trustee, Industrial Alliance, for the DC Plan.
2	Pension Plan Income Tax Return (T3)	Canada Revenue Agency	March 31st	February 26, 2019	DB Plan	CRA requires Northern Trust as the custodian to prepare and file T3 Income Tax Returns each year. Information obtained from HRM Pension Plan quarterly report.
3	Pension Plan Audited Financial Statements	Superintendent of Pensions	6 months after the Plan's fiscal year end	June 25, 2019	DB Plan	Audited financial statements were completed and approved by the HW board in June.
				June 12, 2019	DC Plan	Audited financial statements are not prepared for this pension plan. However, Industrial Alliance provieds a Financial Report detailing all pertinant details of the plan. This report is submitted to the regulatory body prior to June 30th each year.
4	Annual Information Returns (AIR)	Superintendent of Pensions	June 30th	June 12, 2019	DB Plan	
				June 12, 2019	DC Plan	
5	Actuarial Valuation*	Superintendent of Pensions Canada Revenue Agency	September 30th	August 26, 2016		Actuarial Valutaion was conducted as of January 1, 2019. Official results will be filed with the Superintendant of Pensions and CRA once official report is received and approved by the Halifax Water Board.
6	Plan Amendments	Superintendent of Pensions	60 days after the amendment approved by the Board	April 4, 2018	DB Plan	Amendment #11 approved by the Board March 29, 2018; Submitted to the Superintendent April 4, 2018 The amendment was pursuant to changes requested to the Plan Text by the Regulator.
		Canada Revenue Agency				
		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 - 2019
as at June 30, 2019

	Report	Filing Deadline/ Recurrance	Date last filed/ Performed		Comments
1	Pensioners' Payroll	Monthly	September 1, 2019		Pensioners are paid the 1st of each month; no exceptions to report for Q2 2019.
2	Contributions to the Trustee	Monthly	September 18, 2019	DB Plan	Remittances due to Northern Trust within 30 days of monthend; no exceptions to report for Q2 2019.
			January 9, 2019	DC Plan	Remittances due to Industrial Alliance within 30 days of monthend; no exceptions to report for Q2 2019.
			n/a	Notional Agreement*	
3	Pension Plan Financial Statements	Quarterly	September 16, 2019	DB Plan	2nd Quarter (April - June 2019)
			n/a	DC Plan	Quarterly statements are not prepared for the DC Plan. A financial report is prepared by Industrial Alliance and that report is filed with the AIR to the regulator.
			n/a	Notional Agreement*	Financial statements not required.
4	Investment Performance Review & Compliance with SIP&P	Quarterly	September 26, 2019	DB Plan	2nd Quarter (January - June 2019) Report prepared quarterly by administration staff for the HW Board of Directors, in conjunction with the quarterly HRM Pension Plan Committee meeting documentation.
5	Annual Pension Statements to Members	June 30th	June 18, 2019	DB Plan	
			June 18, 2019	DC Plan	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018. Members also have access to online, real-time reporting.
			June 18, 2019	Notional Agreement*	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018.
6	Fiduciary Liability Insurance	Annually	November 15, 2018	DB Plan	Reviewed and renewed annually by administration staff. The policy period expires November 30 each year.

* Notional Agreements were implemented during 2017 with an effective date for January 1, 2017. Notional Agreements are not registered therefore not subject to reporting requirements to a regulatory body.

Halifax Regional Water Commission Employees' Pension Plan
Service Standards Report - 2019

Quarter 2 (as at September 17, 2018)			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	18	Business Days	5	4	20%	17	5	5	0%	28	44.6
Marriage Breakdown Calculations	28	Business Days	0	0			0	0			0.0
Post-Retirement Death Letter	10	Business Days	0	0			0	0			0.0
Pre-Retirement Death Benefit	28	Business Days	0	0			0	0			0.0
Termination Estimates/ Calculations											
- Standard	18	Business Days	6	6	0%	21	6	6	0%	16	36.8
- Non Standard (incl RTAs)	28	Business Days	0	0			0	0			0.0
Volume-Weighted Average			**11**	**10**	**9%**	**19**	**11**	**11**	**0%**	**22**	

	Total # Completed	**# Past Standard**	**% within Standard**
Combined Volume-Weighted Average	**11**	**11**	**0%**

Halifax Water
Halifax Regional Water Commission

ITEM # 8-I
HRWC Board
September 26, 2019

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

SUBMITTED BY:
Reid Campbell, M.Eng., P.Eng., Director, Water Services

APPROVED:
Cathie O'Toole, MBA, CPA, CGA, ICD.D, General Manager

DATE: September 26, 2019

SUBJECT: **Lake Major Water Levels**

INFORMATION REPORT

ORIGIN

Halifax Water initiated voluntary conservation measures on August 22, 2019, for customers served by the Lake Major water supply.

BACKGROUND

The operation of the Lake Major Dam is regulated by the Water Withdrawal Approval for Lake Major issued by Nova Scotia Environment (NSE). The Approval for the previous Lake Major Dam required Halifax Water to provide environmental and fisheries maintenance flows of 4 cubic feet per second (cfs) at all times from Lake Major into the Little Salmon River. The previous dam provided little to no ability to control or regulate water discharged to the river. Notwithstanding the requirement for 4 cfs at all times, there have been occasions in the past, in dry weather, when the maintenance flow would not meet the mandated 4 cfs. Historically, these instances would be reported to Nova Scotia Environment (NSE) and would not result in an order or directive from NSE or the Department of Fisheries and Oceans (DFO).

When emergency repairs were made on the dam fishway in January 2015, Halifax Water lost the available means of providing fish passage and some maintenance flows. Halifax Water procured a fish pump to provide fish passage. In addition, NSE and DFO directed that we provide an alternate means of providing maintenance flows. Options for doing so were limited due to concerns about the stability of the existing dam. Ultimately, twin

siphons were constructed to provide the required flow from upstream of the dam to the Little Salmon River. These were constructed and commissioned in the spring of 2015.

In 2016, the Halifax area experienced a period of extended drought that resulted in historically low water levels at Lake Major. The area upstream of the existing dam is very shallow and as a result, the siphons lost adequate submergence to function in mid-September and stopped working. NSE required Halifax Water to implement mandatory water use restrictions and also to find an alternate means to deliver maintenance flows. Water use restrictions were in place until October 22, 2016. Options for providing flow were limited given site constraints but Halifax Water was able to provide a fraction of the required flow using electric pumps. NSE also advised that, in future, they required that we take proactive measures, such as water use restrictions, to avoid an interruption in maintenance flows and that maintenance flows would be required, regardless of extreme environmental conditions.

In 2018, similar conditions were experienced as in 2016 and a similar situation was experienced regarding lake levels and fisheries maintenance flows and as a result, mandatory water use restrictions were implemented on September 20, 2018 and removed on October 22, 2018.

In summary, water use restrictions implemented in 2016 and 2018 were a mandated response by Nova Scotia Environment to our inability to provide fisheries maintenance flow with the design of the previous Lake Major Dam.

DISCUSSION

While the construction contract is ongoing, the new Lake Major Dam was completed as a functioning facility in mid-August 2019. The new dam is approximately 1.5 m deeper at the upstream face than the previous dam and provides the facility through the fish way and sluice gates to provide maintenance flow as long as any water exists at the upstream face of the dam. The elevation of the new dam spillway is also 0.5 m higher, providing increased storage.

When staff reported to the Board on restrictions in 2018, it was advised that with the increased ability of the new dam to store water and deeper water at the upstream face, water use restriction would be rarely anticipated once the dam was operational. Operation through this season, however, was governed by the constraints of the old dam up to mid-August. Water levels were managed to allow the contractor to complete phase 3 of the construction project which was the removal of the old dam and remediation of the river between the two dam sites. This, combined with a lack of rainfall in July and August placed us in a potentially precarious position for lake levels in Lake Major.

Unlike 2016 and 2018, where the driver for restrictions was the need to maintain compliance with fisheries maintenance flow obligations, in 2019, we are meeting those

obligations, with the new dam structure in place. Water conservation measures were declared by Halifax Water out of concern that water levels would drop to levels below what is accessible for the treatment plant at the Lake Major pumping station; therefore, impacting supply to customers.

As of August 22, when voluntary conservation measures were declared, it was determined that lacking any rainfall, the lake level would drop below the critical level for pumping of 17.8 m. In addition to the voluntary restrictions, the following measures were put into place:

- An ICS team was formed to manage the period of restrictions.
- A public information campaign was launched including the addition of a Water Supply Risk Level meter to the Halifax Water web site.
- An application was made to Nova Scotia Environment to temporarily reduce fisheries maintenance flows from 6 CFS to the historical requirement of 4 cfs. This was granted until September 30.
- Leak detection efforts in the water Dartmouth distribution system were accelerated.
- Planned work to improve our ability to bring water from Halifax to Dartmouth on the bridge line was expedited, and the bridge line was tested.
- Conversations were had with some customers on the Lake Major system who can use large volumes of water on a discretionary basis.
- Plans have been developed to implement contingency pumping measures at Lake Major.

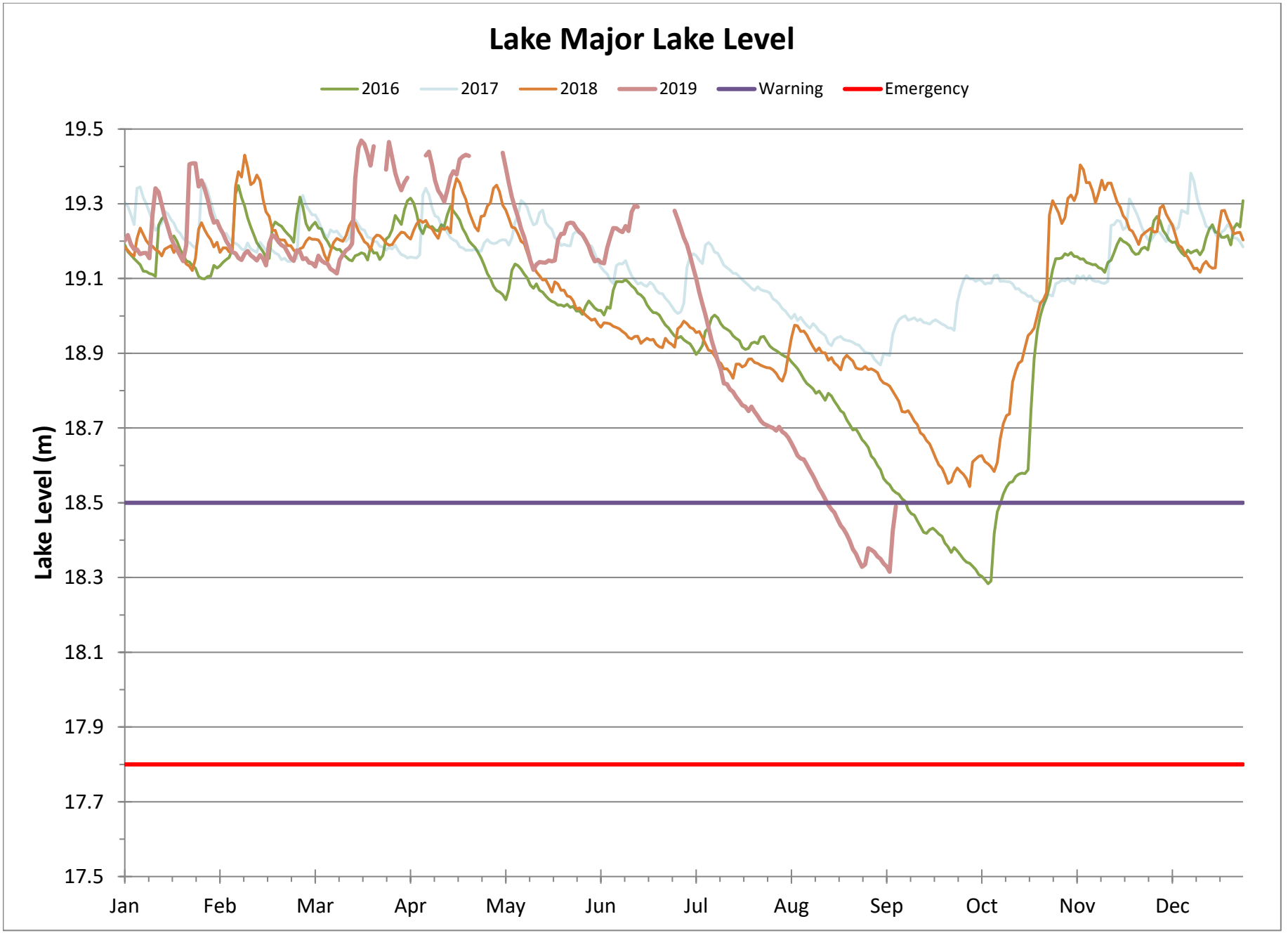
As a result of these efforts, inputs to the Dartmouth distribution system were reduced by 4.5 million litres per day.

The attached figure show Lake Major water levels since 2016. The 18.5 m elevation is highlighted as a critical elevation in our interaction with NSE and as a key trigger point in our drought management plan. The 17.8 m elevation is the point at which we are no longer able to pump from the Lake Major pumping station with current infrastructure. The 2016 line in the figure illustrates the decline in water levels through July and August. It also shows increases in water levels resulting from the passing of Tropical Storm Erin on August 29 and Hurricane Dorian on September 7.

As a result of these rain events, the lake level has risen above 18.5 m and the projected critical pumping date is now October 27. As a result, the water supply risk level has changed from warning to watch. Voluntary conservation measures have been maintained, however, as recent history has shown that in drought years we do not get a “permanent recovery of lake levels until late October.

Report Prepared by: _____

Reid Campbell, M.Eng., P.Eng., Director, Water Services, 902-441-1048


Lake Major Lake Level
2016
2017
2018
2019
Warning
Emergency
Lake Level (m)
19.5
19.3
19.1
18.9
18.7
18.5
18.3
18.1
17.9
17.7
17.5
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Halifax Water
Halifax Regional Water Commission

ITEM # 9-I
HRWC Board
September 26, 2019

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

SUBMITTED BY: *Original Signed By:*
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 15, 2019

SUBJECT: **2019/20 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 2019/20 is attached, with updated information as at September 15, 2019. This report shows the cost containment initiatives effecting operations for 2019/20 as a result of new initiatives implemented during the year and an ongoing initiatives from fiscal years 2013/14 to 2018/19 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 2019/20 are $6.3 million as outlined by category in Figure #1 below:

Figure #1

Procurement Strategies	**$988,654**	**15.7%**
Human Resource Strategies	**$3,210,061**	**50.8%**
Information Technology Strategies	**$108,700**	**1.7%**
Facilities/Process Strategies	**$1,859,343**	**29.4%**
Reduce Paper and Printing Costs	**$37,479**	**0.6%**
Technology and Business Process Changes	**$112,138**	**1.8%**
	$6,316,375	**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 53% of the savings within Human Resource Strategies and 27% of the total projected cost savings for 2019/20. 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 56% of savings within the category and 16% of the total projected savings for 2019/20.

Chemical costs are key to both water and wastewater services. Through its Procurement Strategies, staff continues to negotiate the best product and pricing to enable the facilities

to operate in an efficient manner. This is evident in 2019/20 where savings related to chemical purchasing amount to an estimated $0.4 million.

New cost containment initiatives implemented during the 2019/20 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.

BUDGET IMPLICATIONS

Available information on cost containment initiatives were taken into consideration when the 2019/20 budgets were developed. 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: *Original Signed By:*
Allan Campbell, B.Comm, CPA, CMA
Manager, Finance, (902) 490-4288

Halifax Water
Summary Report - Cost Containment Initiatives
2019/2020 Fiscal Year

16-Sep-19

#	Initiative	Annual Cost Savings	Comments	Year Initiated	2019/20 Cost Savings
1	**General Budget Strategies**				
	Sub-total	$617,201			$0
2	**Procurement Strategies**				
	Insurance adjustment services - sole source relationship over a 10 year period	$5,460	HW participated in a joint tender with HRM. Costs will be approximately 20% lower.	2013/14	$5,460
	Standardized uniforms and clothing	$20,000	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	$5,000	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	$51,624	HW participated in a joint tender with HRM	2013/14	$51,624
	Customer account collections	$10,000	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	$60,000	Savings as a result of contract tendering	2013/14	$60,000
	NSPI rate reclassification	$16,000	Eastern Passage WWTF	2014/15	$16,000
	NSPI rate reclassification	$15,000	Duffus Street Pumping Station	2015/16	$15,000
	Chemical purchasing	$400,000	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 CCC staff	$1,500	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	$48,000	HW leveraged the mobility contract of the Province of Nova Scotia	2016/17	$48,000
	Garbage collection - JD Kline Plant	$1,370	An 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 vehicles.	2016/17	$1,370
	Utilizing HW staff to setup excavations sites	$50,000	Using trained HW staff as TWS for job sites, unless outside traffic control personal are required	2016/17	$50,000
	RFP for biosolids transport	$220,000	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 WWTP	2017/18	$220,000
	Traffic control	$50,000	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)	$9,200	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
	Alternate parts replacement	$3,000	Sourced a local 3D printing shop to fabricate low cost gears which allowed us to repair the influent composite sampler instead of replacing a major part of the unit.	2019/20	$3,000
	Equipment calibration	$3,000	Internal staff are now able to calibrate fixed gas detectors instead of outsourcing this to a MSA technician service provider.	2019/20	$3,000
	In-house training	$4,500	Developed in-house method to purge primary sludge discharge line from primary gallery to the sludge holding tank. As a result and external contractor is no longer required to perform this work.	2019/20	$4,500
	Purchasing of sodium sulfite pucks	$10,000	Alternative suppliers and brands for sodium sulfite pucks were sourced, and we were able to find a supplier of a product producing a similar result at a lower costs. These pucks are used to dechlorinate effluent before its release.	2019/20	$10,000
	Reduction in sampling	$5,000	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
	Sub-total	$1,397,754			$988,654
3	**Human Resource Strategies**				
	Corporate ID Badges	$3,200	updating the corporate ID badges to be deferred from the 2013/14 fiscal year to 2014/15 for existing employees	2013/14	$3,200
	Heavy Truck and Equipment Service	$100,000	the addition of a new Heavy Equipment Technician provides in-house maintenance service capabilities for the HW fleet.	2013/14	$100,000
	Beeper Pay	$75,000	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
	Annual service awards banquet	$15,000	Changed the venue and the cost of the meal	2014/15	$15,000
	Accessing on-line training opportunities	$2,241	More use of on-line training versus the traditional methods, including WHMIS and TDG renewals	2014/15	$2,241
	Background Checks	$654	Out-sourced background checks to a new contractor.	2015/16	$654

Halifax Water
Summary Report - Cost Containment Initiatives
2019/2020 Fiscal Year

	Workload, labour force assessment	$140,000	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
	Pension plan re-design	$1,700,000	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	$35,000	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	$57,000	January 1, 2016 saw the elimination the administrative assistant within Regulatory Services.	2015/16	$57,000
	Workload, labour force assessment	$81,966	November, 2016 saw the elimination of a Compliance Sampling position as a result of a reduction in sampling requirements.	2016/17	$81,966
	Hiring at Lake Major plant	$9,800	Summer student not hired	2016/17	$9,800
	Overtime reductions	$40,000	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 WWTP 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	$125,000	The selection of a new benefit provider for life and LTD resulted in significant cost savings over the next three (3) years…2018-2021	2017/18	$125,000
	Actuarial Valuation - January 1, 2019	$825,200	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
	Sub-total	$4,206,599			$3,210,061
4	**Information Technology (IT) Strategies**				
	Xerox managed print solutions	$20,000	Rationalization and replacement of photocopiers and printers	2013/14	$20,000
	Network	$80,000	Change in cost model by Eastlink, giving HW the new pricing	2013/14	$80,000
	Telephone land lines	$8,700	Rationalization of services and eliminate duplication of resources as required	2013/14	$8,700
	Sub-total	$108,700			$108,700
5	**Facilities/ Process Strategies**				
	Chlorine Utilization - Pockwock	$40,000	Discontinuation of the pre-chlorination process	2013/14	$40,000
	Lab Testing	$105,000	Price benefits from purchasing product from a different source mainly affecting the Harbour Solution Plants	2013/14	$105,000
	Pumper Truck Utilization	$130,000	pilot project to be scheduled initially for stormwater customers only as a test	2013/14	$130,000
	Waste oil boiler system - Herring Cove WWTF	$13,250	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	$8,025	sampling was reduced from weekly to monthly	2014/15	$8,025
	NSE system assessments	$25,000	Assessment reports are being completed in-house rather that being outsourced	2014/15	$25,000
	Decommissioning of the Bedford South pumping station	$15,000	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	$4,793		2014/15	$4,793
	Insulation upgrades - Bennery Lake WSP	$36,000		2014/15	$36,000
	Lighting upgrades - Eastern Passage WWTF	$7,880		2014/15	$7,880
	Lighting upgrades - Dartmouth WWTF	$22,542		2014/15	$22,542
	Lighting upgrades - Herring Cove WWTF	$13,744		2014/15	$13,744
	Lighting upgrades - Halifax WWTF	$29,845		2014/15	$29,845
	Lighting upgrades - Aerotech BPF	$19,109		2014/15	$19,109
	HVAC upgrades - Eastern Passage WWTF	$20,711		2014/15	$20,711
	HVAC upgrades - Roach's Pond pumping station	$13,500		2014/15	$13,500
	MCC 190 cooling and heat recovery - Halifax WWTF	$13,164		2014/15	$13,164
	Aeration system upgrades - Eastern Passage WWTF	$76,382		2014/15	$76,382
	Orchard Park in-line turbine project	$31,494		2014/15	$31,494
	Wind farm - Pockwock WSP	$130,399		2014/15	$130,399
	Biogas CHP system - Mill Cove	$86,000		2014/15	$86,000
	Disposal of water treatment plant solid residual material	$36,000	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	$150,000	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	$20,000	Transitioning from traditional billing methods to e-delivery	2014/15	$20,000
	Change in Recycling Pickups	$2,700	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	$14,300	Expected energy savings	2015/16	$14,300
	Dartmouth WWTF - UV Channel Isolation	$59,460	Expected energy savings	2015/16	$59,460

Halifax Water
Summary Report - Cost Containment Initiatives
2019/2020 Fiscal Year

Halifax WWTF - Fixed Compressed Air Leaks	$2,293	Expected energy savings	2015/16	$2,293
Halifax WWTF - UV Channel Isolation	$62,115	Expected energy savings	2015/16	$62,115
Herring Cove WWTF - MCC 190 Cooling/Heat Recovery	$8,496	Expected energy savings	2015/16	$8,496
Herring Cove WWTF - Ventilation Air Heat Recovery	$28,300	Expected energy savings	2015/16	$28,300
Sampling	$4,160	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	$50,000	Using trained HW staff for traffic control on HW job sites unless contractors are required.	2015/16	$50,000
Process alternative	$40,000	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	$4,854	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	$150,270	Annual shutdown of UV disinfection system resulted in cost savings associated with electrical energy savings, peak demand reduction,	2016/17	$185,941
Halifax WWTF - Ventilation Air Heat Recovery System	$32,300	Implemented October, 2016	2016/17	$32,300
Halifax WWTF - Carbon Scrubber By-Pass	$40,800	Implemented April, 2016	2016/17	$46,268
Tools developed internally	$20,000	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	$3,000	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	$26,000	A new filter system was installed at the Eastern Passage WWTP 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)	$2,000	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	$9,465	Implemented April, 2017	2017/18	$9,378
Dartmouth WWTF - Ventilation Air Heat recovery	$30,293	Expected energy savings - Implemented March, 2018	2017/18	$64,465
Servicing oxygen monitors in-house	$30,000	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)	$1,500	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	$8,000	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	$15,120	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	$40,000	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	$20,000	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	$4,500	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	$1,875
Building maintenance	$1,500	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	$15,000	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

Halifax Water
Summary Report - Cost Containment Initiatives
2019/2020 Fiscal Year

	Improvements to aeration train	$15,000	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
	Sub-total	$2,556,878			$1,859,343
6	**Reduce Paper and Printing Costs**				
	Electronic HRWC Board Packages	$7,500	Send Board packages out electronically rather than issuing hard copies	2013/14	$7,500
	Paperless Office within the HR Department	$4,804	Creating electronic workflow	2013/14	$4,804
	Stewardship Report	$3,000	The Stewardship Report will be published electronically only, with no hard copies	2013/14	$3,000
	Changes to document archiving	$3,175	Transitioning file storage from outside contractor to public resources	2013/14	$3,175
	Changes to document archiving	$9,000	Transitioning file storage from outside contractor to public resources	2016/17	$9,000
	Cost reduction associated with off-site storage	$10,000	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
	Sub-total				$37,479
7	**Technology and Business Process Changes**				
	Workload, labour force assessment	$47,605	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	$64,533	Re-structuring by management within the AMI project as a result of technological efficiencies anticipated.	2015/16	$64,533
	Sub-total	$142,138			$112,138
		$9,779,557			**$6,316,374**

Halifax Water
Halifax Regional Water Commission

ITEM #10-I
HRWC Board
September 26, 2019

TO:
Mr. Russell Walker, Acting Chair and Members of the Halifax Regional Water Commission Board

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

APPROVED: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 11, 2019

SUBJECT: **2019/20 Capital Budget Update**

INFORMATION REPORT

ORIGIN

Approval of 2019/20 Capital Budget

BACKGROUND

The annual capital budget for 2019/20 was approved by the Halifax Water Board on February 4, 2019 and the Nova Scotia Utility and Review Board on May 3, 2019. The approved capital budget contains a series of proposed projects and purchases required for the ongoing operation and enhancement of the utility's operations. The capital programs helps ensure the utility meets its desired level of service and covers the core drivers of asset renewal, compliance and growth.

To reinforce the importance of the implementation of the capital budget programs, the Halifax Water Corporate Balanced Score Card (CBS) includes a performance indicator under the category of Asset Renewal entitled Optimization of Capital Budget Spend. The 2019/2020 target range as per the CBS is to ***spend 85 to 95 % of the Capital Budget derived from Rate Regulated Funding.***

The Engineering & Information Services (EIS) department has the corporate responsibility to manage and monitor the total capital expenditure plan. To help ensure the optimization of the capital expenditure, EIS staff regularly review the projected annual capital spending variance and optimize capital funding re-allocation opportunities. This report summarizes the current capital project underspending and identifies the opportunities for capital funding re-allocation to specific alternative projects.

DISCUSSION

Subsequent to the development of the 2019/20 capital budget plan, EIS staff have developed an implementation plan for the identified projects. This plan generally includes the identification of the portfolio of projects assigned to each senior manager within EIS and the Operations departments as well as the individual Project Managers assigned to each project along with the scope of work, budget and schedule.

Based on actual results from project development, tendering and delivery as of mid-September 2019, staff have reviewed all proposed projects and identified the existence and magnitude of variances in the following categories:

- Projects forecast to be completed under budget, and
- Projects that will be cancelled or deferred to future years

Table 1 – 2019/20 Capital Budget – Projected Underspending (Appendix A) includes the results of the current variance analysis for materially large projects.

The funding approved for projects that are tracking to carry-over into 2020/21 will stay with the project and not be subject to re-allocation. The aggregated funding amount that is tracking to be underspent due to under budget or cancelled/deferred projects will be considered for re-allocation. The re-allocation opportunities will be developed with consideration for the following:

- Funding for identified current over-budget projects
- Funding for additional priority projects from within the same asset class.

Table 2 – 2019/20 - Funding Re-allocation Opportunities (Appendix 2) identifies the specific materially large projects or purchases that are identified as current priorities for implementation within 2019/20 that were not within the approved budget or approved projects that are tracking over budget and require additional funds.

BUDGET IMPLICATIONS

This is an Information Report and has no direct budget implications. The capital budget review process is intended to help optimize the total capital expenditure for the fiscal year consistent with the Corporate Balance Scorecard target.

Funding re-allocations made within fiscal year 2019/20 will cause shifts in future year budgets for debt servicing and depreciation expense in Water, Wastewater and Stormwater. Funding re-allocations will be reviewed to ensure source of funding is appropriate for the type of project. Halifax Water will maximize depreciation as a funding source within a fiscal year within each service, as depreciation funding cannot be reallocated amongst services. Reallocations between capital budgets for each service area will be reflected as a changed allocation of debt financing.

As 2019/20 is not a test year, there is no linkage to current rates and there is more flexibility to make adjustments than in a rate application test year as new debt servicing and depreciation expense for 2020/21 have not yet been reflected in rates.

ATTACHMENTS

Table 1 – 2019/20 Capital Budget – Projected Underspending – September 26, 2019
Table 2 - 2019/20 Capital Funding Re-allocation Opportunities – September 26, 2019

Report Prepared By: *Original Signed By:*

Jamie Hannam, P. Eng., MBA,
Director Engineering & Information Services, (902) 490-4804

Financial Approved by: *Original Signed By:*

Allan Campbell, B. Comm, CPA, CMA,
Manager, Finance, (902) 266-8655

TABLE 1
2019/20 Capital Budget – Projected Underspending
September 26, 2019

2019/2020 CAPITAL PROJECTS	PROJECTED UNDERSPEND
WATER	
Water Distribution – Main Renewal Program Shore Road Bridge • Deferred to 2020 construction due to deferral of the HRM project.	$125,000
Peninsula Transmission Main Project • Project was proposed as candidate for Fed/Prov Infrastructure project. No external funding received. Project did not proceed	$400,000
Cogswell Street Watermain Replacement • Project delayed by HRM for a 2020 start	$600,000
JD Kline Low Lift Pump #3 • Decision was made recently to proceed with smaller scoped project.	$600,000
JD Kline Pre Mix Area Upgrade • Decision made to defer this work until after the JDK optimization project is completed.	$90,000
Lake Major WSP Clarifier Repairs • This budget item was included in the event that emergency repairs were necessary. At this point, the LM WSP Optimization study is underway and there is no current plan to carry out emergency repairs	$285,000
Lake Major WSP Filtration System Replacement • This covers design work for the Filtration System Replacement. The LM WSP Optimization Study is proceeding, There is no plan to initiate the design work for the filtration study ahead of this study so the money could be reallocated	$280,000
Bennery WSP MCC Replacement Design • Not proceeding due to Operations priorities	$150,000
Silver Sands WSP – Electrical/Architectural Upgrades • Project cancelled due to a change in operational priorities.	$150,000
•	
WATER - SUBTOTAL	**$2,680,000**

TABLE 1
2019/20 Capital Budget – Projected Underspending
September 26, 2019

WASTEWATER	
Mill Cove WWTF – Process Upgrades - Preliminary + Detailed Design • Project deferred due to a lack of clarity on the facility upgrade requirement schedule.	$150,000
Halifax WWTF – New Raw Water Pumps • Project cancelled. Funds were reallocated	$350,000
Mill Cove WWTF – South Secondary Clarifier – Recoat/Replace Mechanisms • Project cancelled. Pending future condition assessment and Mill Cove WWTF plant upgrade.	$100,000
Wastewater Pumping Station Performance Testing • Project deferred due to a lack of resources and competing priorities. Funds to be reallocated as follows: o Funds moved to 2-689, HX + DT Densadeg Flow Meters.	$250,000
Beaver Crescent Forcemain Replacement • Completed under budget	$105,000
Wastewater Trenchless Rehabilitation Program • Reduced scope based on recent NSUARB decision	$1,160,000
WASTEWATER - SUBTOTAL	**$2,115,000**
STORMWATER	
Cogswell Redevelopment – Storm sewer relocation • Project delayed to a 2020 start	$300,000
Lakecrest Drive CMP Replacement • Completing Engineering study this year only.	$75,000
Everette Street at Bonnie Brae Drive Drainage Upgrade • Completing Engineering study this year only.	$75,000
Stormwater Pipe Condition Inspections (CSP) • Deferred to 2020	$100,000
Yankeetown Road Culvert, near Civic 16 • Deferred to 2020	$170,000
Clement St Berm • Pending regulatory approval. Will not construct this year.	$175,000
Percy Street Storm Sewer Replacement • Completed under budget	$134,000
STORMWATER - SUBTOTAL	**$1,029,000**

TABLE 1
2019/20 Capital Budget – Projected Underspending
September 26, 2019

CORPORATE	
IT Project - Analytics Decision Support System • Reprioritized to 2020	$225,000
IT Project - Customer Transaction Site • Merged with Customer Portal project for 2020 delivery	$700,000
IT Project - Permit Approvals • Reprioritized to 2020	$770,000
IT Project - Approval Forms Framework • Reprioritized to later years	$600,000
CORPORATE - SUBTOTAL	**$2,295,000**
GRAND TOTAL	**$8,119,000**

TABLE 2
2019/20 Capital Funding Re-allocation Opportunities
September 26, 2019

2019/20 CAPITAL PROJECTS	PROJECT COST
WATER	
Quarry Road 2019/20 Water IP • Water component of HRM Integrated Project requires additional funds based on actual tender results.	$123,000
Chadwick Street 2019/20 Water IP • Water component of HRM Integrated Project requires additional funds based on actual tender results.	$159,000
Percy and Andrew Street 2019/20 Water IP • Water component of HRM Integrated Project requires additional funds based on actual tender results.	$65,000
Rexdale/Eastview Street 2018/19 Water IP • Water component of HRM Integrated Project requires additional funds based on actual tender results.	$26,000
Gottingen St Transmission Main Protection • New funding required for emergency protection of shallow mains	$50,000
Lake Major WSP – Butterfly Valve Replacement • Additional funds based on actual tender results for equipment supply and revised estimate for installation.	$120,000
Lake Major WSP – Dry Polymer Feed System Replacement • Additional funds based on actual tender results.	$120,000
Lake Major Dam Construction • Additional Project Costs - (Projected as of Sept 2019)	1,400,000
Federal / Romans Avenue Watermain renewal Integrated with Sewer Separation Project • Additional funds based on actual tender results	$125,000
Duffus Drive - Scotia Drive Watermain Interconnection • New project carried out by Operations Department.	$26,000
WATER - SUBTOTAL	**$2,214,000**

TABLE 2
2019/20 Capital Funding Re-allocation Opportunities
September 26, 2019

WASTEWATER	
Halifax WWTF – New Raw Water Pumps	$350,000
Halifax WWTF – Existing Raw Water Pump Rebuilds	$150,000
Halifax WWTF - New South Access Gate	$16,000
Halifax + Dartmouth WWTF - Densadeg Flow Meters	$250,000
Mill Cove WWTF - North Side RAS Pump Upgrade	$25,000
AWWTF - Biological Treatment Computational Fluid Dynamics (CFD) Analysis	$50,000
HWWTF - Flow Splitting CFD Analysis	$35,000
DWWTF - New Raw Water Pumps	$200,000
DWWTF - Existing Raw Water Pump Rebuilds	$250,000
Chisholm Avenue Combined Sewer Emergency Replacement	$1,530,000
Emergency Pump Replacement - Additional Pumps	$150,000
WASTEWATER - SUBTOTAL	**$3,006,000**
STORMWATER	
Ellenvale Run Phase 2 Retaining Wall • Original project over budget	$638,000
Wanda Lane Storm Sewer • Original project over budget based on tender	$100,000
Dartmoor Crescent Culvert Replacement • Additional culvert replacements required	$134,000
STORMWATER - SUBTOTAL	**$872,000**

TABLE 2
2019/20 Capital Funding Re-allocation Opportunities
September 26, 2019

CORPORATE	
IT Project – Telephony • Additional budget for revised scope	$350,000
IT Project – Intranet • Additional budget for enhanced scope	$250,000
IT Project – Network Hardware • Increased demand for motion tablets	$110,000
IT Project - Asset Registry • Additional budget for project enhancements	$100,000
IT Project - Disaster Recovery • Reprioritized	$200,000
IT Project – Enterprise Data Warehouse • Additional budget for SAP interfaces	$220,000
CORPORATE - SUBTOTAL	**$1,230,000**
GRAND TOTAL	**$7,322,000**