902.H2O.WATR
902.420.9287
450 Cowie Hill Road
P.O. Box 8388 RPO CSC
Halifax, Nova Scotia
Canada B3K 5M1

September 21, 2018

Ray Ritcey, Chair
Halifax Water
Halifax, NS

The regular meeting of the Halifax Water Board will be held on Thursday, September 27, 2018 at 9:00 a.m. in the Boardroom at 450 Cowie Hill Road, Halifax.

AGENDA

In Camera Reports

1C Approval of Minutes of the In-Camera Meeting held on Thursday, June 21, 2018

2C Business Arising from Minutes
a) Contractual Matter – Verbal

3C Contractual Matter - Verbal

4C Personnel Matter - Verbal

Regular Reports

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

2. a) Approval of Minutes of the Regular Meeting held on Thursday, June 21, 2018
   b) Approval of Minutes of the Special Meeting held on Friday, July 20, 2018

3. Business Arising from Minutes
   a)

Financial

4.1 Operating Results for the Five Months ended August 31, 2018

4.2 Capital Project Spending Summary – 2017/18

Capital

5.1	J.D. Kline Raw Water Intake Travelling Screens Replacement Program	$1,230,000
5.2	Doyle Street Storm Sewer – Phase 2	$ 636,000
5.3	Leiblin Drive Booster Station – Replacement of Diesel Fire Pump	$ 510,000
5.4	Bissett Forcemain Replacement – AC Pipe Removal Funding Increase	$ 304,000
5.5	2018/19 Coburg Road WM Renewal and Coburg Road WW Integrated Project – Additional Funding	$522,000
	TOTAL:	**$3,202,000**

Other

6. 2018 Fall Debenture
7. Board Meeting Format

Information Reports

1-I Operations and Financial Monthly Update
2-I Capital Budget Approvals to Date
3-I Bank Balance
4-I 2017/2018 Annual Report
5-I 2018/19 Capital Budget Update
6-I HRM Pension Plan Investment Performance – 2nd Quarter (Q2), 2018
7-I Halifax Regional Water Commission Employees' Pension Plan Financial Report – 2nd Quarter (Q2), 2018
8-I Lake Major Water Levels

Original Signed By:

James G. Spurr
Secretary

HALIFAX REGIONAL WATER COMMISSION
MINUTES

June 21, 2018

PRESENT:	Commissioner Ray Ritcey, Chair Commissioner Russell Walker, Vice Chair Commissioner Jacques Dube Commissioner Darlene Fenton Commissioner Lorelei Nicoll Commissioner Lisa Blackburn Commissioner Craig MacMullin (via teleconference)
REGRETS:	Commissioner Steve Streatch
STAFF:	Carl Yates, General Manager, HRWC Cathie O'Toole, Director, Corporate Services, HRWC James Spurr, Legal Counsel, HRWC Lorna Skinner, Administrative Assistant, HRWC

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CALL TO ORDER

The Chair called the regular meeting to order at 9:02 a.m. in the Board Room of the HRWC, 450 Cowie Hill Road. The Board moved In Camera at 9:02 and the regular meeting reconvened at 10:20 a.m.

1.a) RATIFICATION OF IN CAMERA MOTIONS

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

MOTION PUT AND PASSED.

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

Carl Yates requested that an update on federal infrastructure funding be added to the Agenda. The Chair agreed.

MOVED BY Commissioner Fenton, seconded by Commissioner Walker that the Halifax Regional Water Commission Board approve the order of business and approve additions and deletions with the above noted amendment.

MOTION PUT AND PASSED

2.a) APPROVAL OF MINUTES – March 29, 2018 and April 19, 2018

MOVED BY Commissioner Nicoll, seconded by Commissioner Walker that the Halifax Regional Water Commission Board approve the minutes of the regular meeting of March 29, 2018, and the special meeting of April 19, 2018.

MOTION PUT AND PASSED.

3. BUSINESS ARISING FROM MINUTES

a) HIAA Complaint Update

Cathie O'Toole informed the Board that final arguments will be heard on Monday, June 25th and a Decision should follow within eight weeks.

4.1 2017/18 AUDITED FINANCIAL STATEMENTS AND YEAR END RESULTS

A report dated June 12, 2018 was submitted.

Cathie O'Toole gave a brief presentation on the audited financial statements for the year ended March 31, 2018. The Auditors, Grant Thornton, gave a clean audit opinion. They did conduct some additional testing this year due to the advanced metering infrastructure

project. They also did additional control testing with regard to executive expenses. Nothing was found that violated any policies.

Ms. O'Toole added that there is currently a surplus of $20M under IFRS or $8.8M under the NSUARB reporting. Ms. O'Toole explained the difference between the two reporting methods.

Ms. O'Toole gave an overview of the financial statements.

MOVED BY Commissioner Walker, seconded by Commissioner MacMullin that the Halifax Regional Water Commission Board approve the March 31, 2018, Halifax Regional Water Commission's Audited Financial Statements prepared using International Financial Reporting Standards.

MOTION PUT AND PASSED.

4.2 OPERATING RESULTS FOR THE ONE MONTH ENDED APRIL 30, 2018

An information report dated June 13, 2018, was submitted.

4.3 HALIFAX REGIONAL WATER COMMISSION EMPLOYEES' PENSION PLAN FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2017

A report dated May 25, 2018, was submitted.

Cathie O'Toole stated that 5 years ago, the Plan had a deficit of $27M; now the deficit has been reduced to $1.7M.

MOVED BY Commissioner Walker, seconded by Commissioner MacMullin that the Halifax Regional Water Commission Board approve the audited financial statements for the Halifax Regional Water Commission Employees' Pension Plan (the Plan) for the year ended December 31, 2017.

MOTION PUT AND PASSED.

4.4 HALIFAX REGIONAL WATER COMMISSION EMPLOYEES' PENSION PLAN FINANCIAL REPORT – 1ST QUARTER 2018

An information report dated June 1, 2018 was submitted.

5. CAPITAL PROJECTS

5.1 Solar Photovoltaic (Solar PV) Project Application

A report dated June 8, 2018, was submitted with a brief overview by the General Manager.

MOVED BY Commissioner Fenton, seconded by Commissioner Blackburn that the Halifax Regional Water Commission Board approve:
1. Endorse the enclosed "*HRWC Solar PV Project Development Plan".*
2. Approve proceeding with:
Phase 1 – Application under the provincial "*Solar Electricity for Community Buildings Pilot Program"; and*
Phase 2 – Issuance, acceptance and evaluation of Request for Quotes (RFQs) or Request for Proposals (RFPs) for the development of the identified solar PV Project at the J.D. Kline Water Supply Plant.
3. Forward to Halifax Regional Municipality (HRM) Council to request a Council Resolution indicating support for the project as identified.

MOTION PUT AND PASSED.

5.2 Ellenvale Run Retaining Wall System Replacement (Phase II)

A report dated June 6, 2018, was submitted.

MOVED BY Commissioner Nicoll, seconded by Commissioner Walker that the Halifax Regional Water Commission Board approve the Ellenvale Run Retaining Wall System – Replacement project (Phase II) at an estimated cost of $2,361,000.

MOTION PUT AND PASSED.

6. PORT WALLACE CAPITAL COST CONTRIBUTION

A report dated June 21, 2018, was submitted.

MOVED BY Commissioner Walker, seconded by Commissioner Fenton that the Halifax Regional Water Commission Board direct staff to prepare a detailed Capital Cost Contribution (CCC) analysis for oversized water and wastewater infrastructure to facilitate development in the Port Wallace master plan area.

MOTION PUT AND PASSED.

7. FEDERAL INFRASTRUCTURE FUNDING

Carl Yates informed the Board the both the Provincial and Federal governments have reached out to municipalities looking for a list of possible projects that would qualify for infrastructure funding. Once compiled, the list will be submitted to the Board prior to application for funding. Given the time constraints, a special meeting of the Board may be necessary.

8. DATE OF NEXT MEETING

The next meeting is scheduled for September 27, 2018.

The meeting was adjourned at 11:15 a.m.

Original Signed By:
James G. Spurr
Secretary

Original Signed By:
Commissioner Ray Ritcey
Chair

The following Information Items were submitted:

1-I Operations and Financial Monthly Update
2-I Capital Budget Approvals to Date
3-I Bank Balance
4-I 2017/18 Cost Containment
5-I 2018/19 Capital Budget Update
6-I Cogswell Redevelopment Project
7-I 2017/18 Lead Service Line Replacement Program
8-I Rodent Control
9-I Corporate Balanced Scorecard – 2017/18 Result
10-I Stormwater Billing Update
11-I Fit for Duty Policy Update
12-I Capital Cost Contribution – Financial Status Report for Fiscal Year Ended March 31, 2018.

HALIFAX REGIONAL WATER COMMISSION
MINUTES

July 20, 2018

PRESENT: Commissioner Ray Ritcey, Chair (via email)
Commissioner Darlene Fenton (via email)
Commissioner Lorelei Nicoll (via email)
Commissioner Lisa Blackburn (via email)
Commissioner Craig MacMullin (via email)

REGRETS: Commissioner Steve Streatch
Commissioner Russell Walker, Vice Chair
Commissioner Jacques Dube

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On July 20, 2018, Carl Yates sent an email to the Halifax Regional Water Commission Board requesting their review of Item #1. They were asked to email their vote to Lorna Skinner.

1. INVESTING IN CANADA INFRASTRUCTURE PROGRAM (ICIP)

A report dated July 20, 2018 was submitted.

Via email, it was requested that the Halifax Regional Water Commission Board approve:
1. The list of projects as Halifax Water priorities for the Province's initial infrastructure plan being submitted to the federal government under the ICIP program, and
2. Direct staff to submit the list of projects to HRM for integration with an HRM Regional Council report recommending the endorsement and submission of the candidate projects to the Province for inclusion within their ICIP infrastructure plan.

MOTION PUT AND PASSED.

Original Signed By:
James G. Spurr
Secretary

Original Signed By:
Commissioner Ray Ritcey
Chair

Halifax Water
Halifax Regional Water Commission

ITEM # 4.1
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

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

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

DATE: September 18, 2018

SUBJECT: **Operating Results for the Five Months Ended August 31, 2018**

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 2018/19 fiscal year, period ending August 31, 2018. The statements reflect direct operating costs by department and allocations among water, wastewater and stormwater for common costs shared across all the services provided by Halifax Regional Water Commission (HRWC).

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

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

Consolidated Income Statement - Page 2

Summarized Consolidated Operating Results				
	Actual YTD 2018/19 '000	Actual YTD 2017/18 '000	$ Change	% Change
Operating Revenue	**$59,884**	$58,823	$1,061	1.8%
Operating Expenses	**$41,527**	$39,888	$1,639	4.1%
Operating Profit (Loss)	**$18,357**	$18,935	($578)	-3.1%
Non Operating Revenue	**$734**	$1,596	($863)	-54.0%
Non Operating Expenditure	**$14,221**	$14,576	($356)	-2.4%
Net Surplus before OCI	**$4,870**	$5,955	($1,085)	-18.2%
Pension Plan Expense	**($1,225)**	($2,084)	$859	-41.2%
OCI	**$0**	$919	($919)	-100.0%
Net Surplus (Deficit)	**$3,645**	$4,789	($1,144)	-23.9%

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

Key items of note:

- Operating revenue of $59.9 million is an increase of $1.1 million over the prior year.
- Operating expenses of $41.5 million are $1.6 million higher than the prior year.
- Excluding OCI and Pension Plan Expense, the Net Surplus for the year is $4.9 million, a decline of $1.1 million.
- The Net Surplus for the year is $3.6 million, a decline of $1.1 million from the prior year.
- The approved budget was for a loss of $12.1 million.
- The Forecast is for a loss of $9.1 million, an improvement of $3.0 million.

Balance Sheet - Page 3

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

Cash On Hand		
	2018/19	2017/18
Cash On Hand	**$54,064**	$56,850

Balance Sheet Liquidity (Current Ratio)		
	2018/19	2017/18
Current Assets ('000)	**$102,599**	$102,901
Current Liabilities ('000)	**$47,314**	$45,671
Current Ratio	**2.17**	2.25

Accounts Receivable		
	2018/19	2017/18
Customer Receivables	**$13,372**	$13,459
Unbilled Services	**$18,355**	$17,911
Halifax Regional Mun.	**$14,780**	$12,599
Total	**$46,507**	$43,968

Accounts Payable		
	2018/19	2017/18
Trade Payables	**$12,254**	$10,989
LTD Interest	**$2,507**	$2,682
Halifax Regional Mun.	**$2,792**	$2,116
Total	**$17,554**	$15,786

Capital Assets Under Construction	
	Cumulative '000
Aerotech Wastewater Treatment Facility	**$20,322**
AMI - Automated Metering Infrastructure	**$13,648**
JD Kline Filtration Replacement	**$2,717**
Lake Major Dame Replacement	**$2,197**
All other projects	**$12,085**
Total Capital Expenditures	**$50,969**
External Funding Received	**($12,586)**
Net Assets Under Construction	**$38,383**

Long Term Debt by Service		
	2018/19 '000	2017/18 '000
Water	**$52,441**	$56,844
Wastewater	**$124,035**	$130,332
Stormwater	**$11,016**	$11,297
Combined	**$187,493**	$198,473

Debt Servicing Ratio by Service		
	YTD Debt Servicing Cost Ratio	
	2018/19	2017/18
Water	**17.6%**	19.5%
Wastewater	**22.5%**	23.2%
Stormwater	**18.0%**	17.8%
Combined	**20.2%**	21.3%

- Long Term Debt is down $11.0 million from the prior year as debt repayments have been greater than new debt acquired for the capital program.
- The debt service ratio of 20.2% is well below the maximum 35% ratio allowed under the blanket guarantee agreement with HRM.

Operating Surplus		
	2018/19	2017/18
Opening Op Surplus	**$20,481**	$16,677
YTD Net Profit	**$3,645**	$4,789
Cumulative Op Surplus	**$24,126**	$21,466

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 2018/19 '000	Five Month Budget 2018/19 '000	$ Variance
Operating Revenue	**$59,884**	$56,326	$3,558
Operating Expenses	**$41,527**	$45,321	($3,794)
Operating Profit (Loss)	**$18,357**	$11,005	$7,352
Non Operating Revenue	**$734**	$419	$315
Non Operating Expenditure	**$14,221**	$15,235	($1,014)
Net Surplus (Deficit)	**$4,870**	($3,811)	$8,681

Summarized Consolidated Operating Results			
	Actual YTD 2018/19 '000	Five Month Forecast 2018/19 '000	$ Variance
Operating Revenue	**$59,884**	$56,920	$2,964
Operating Expenses	**$41,527**	$45,321	($3,794)
Operating Profit (Loss)	**$18,357**	$11,599	$6,758
Non Operating Revenue	**$734**	$605	$129
Non Operating Expenditure	**$14,221**	$14,759	($538)
Net Surplus (Deficit)	**$4,870**	($2,555)	$7,425

- Year to date results are $8.7 million better than the pro-rated budget and $7.4 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			
	Actual 2018/19 '000	Budget 2018/19 '000	$ Variance
Consumption Revenue	**$36,150**	$34,062	$2,089
Base Charge Revenue	**$13,928**	$13,857	$71
Wastewater Rebate	**$1,128**	($522)	$1,649
Metered Sales Sub-total	**$51,207**	$47,397	$3,809
SW Site Generated Charge	**$2,614**	$2,813	($199)
HRM Fire Prot & ROW	**$4,546**	$4,546	$0
Other Operating Revenue	**$1,518**	$1,570	($52)
Operating Revenue Total	**$59,884**	$56,326	$3,558

Operating Revenue Results			
	Actual 2018/19 '000	Prior Year 2017/18 '000	$ Variance
Consumption Revenue	**$36,150**	$36,164	($14)
Base Charge Revenue	**$13,928**	$13,762	$166
Wastewater Rebate	**$1,128**	($118)	$1,246
Metered Sales Sub-total	**$51,207**	$49,809	$1,398
SW Site Generated Charge	**$2,614**	$2,684	($70)
HRM Fire Prot & ROW	**$4,546**	$4,550	($5)
Other Operating Revenue	**$1,518**	$1,780	($262)
Operating Revenue Total	**$59,884**	$58,823	$1,061

Operating Revenue has increased $1.1 million from previous year. Key items of note include:

- The dry summer weather has been a driving force for increased consumption revenue.
- Water consumption is up 0.8% from the previous year on a volumetric basis. Consumption had been budgeted to decline by 2.5%.
- Metered Sales revenue is up $0.2 million (1.0%) for Water Service as compared to the prior year.
- Metered Sales revenue is up $1.2 million (4.0%) for Wastewater Service as compared to the prior year.

Wastewater Rebate is normally an offset to revenue. It is available to certain customers whose wastewater does not enter the Wastewater system. The uptake has been less than anticipated and one eligible large customer allowed an accrued rebate to expire. The total benefit to Metered Sales is $1.6 million.

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

Operating Expenses

Summary of Operating Expenses by Department				
	Actual YTD 2018/19 '000	Budget YTD 2018/19 '000	$ Variance	% Variance
Water Services	**$7,907**	$8,846	($939)	-10.6%
WW Services	**$12,709**	$13,932	($1,223)	-8.8%
SW Services	**$2,034**	$2,198	($165)	-7.5%
Engineering & IS	**$3,440**	$3,407	$33	1.0%
Regulatory Services	**$1,362**	$1,568	($207)	-13.2%
Corporate Services	**$4,837**	$5,605	($768)	-13.7%
Depreciation	**$9,238**	$9,764	($526)	-5.4%
Total Operating Expenses	**$41,527**	$45,321	($3,794)	-8.4%

Key items to note:

- Operating Expenses of $41.5 million are $1.6 million higher than the prior year and $3.8 million below the pro-rated budget for the year.
- Most categories are under the pro-rated budget.
- Compared to the prior year, expense categories with the largest increases in costs to date are Water Supply & Treatment, Engineering and Information Systems, and Depreciation.

Financial Revenue

Key items to note:

- Higher than anticipated cash balances and rising interest rates have generated higher interest income.
- The agreement with the Province of Nova Scotia for funding for the Halifax Harbour Solutions Project concluded in 2017/18.
- Miscellaneous Revenue includes various un-regulated activities such as tower leases, energy generation, consulting activities and some contracted services.

Financial Expenses

Key items to note:

- Long Term Debt costs have decreased $0.4 million from the prior year. Debt servicing savings are a result of:
    - New debt issues having lower interest rates than older, maturing issues.
    - Debt repayments having been greater than new debt issues for the past two years.
- 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		
	2018/19	2017/18
	'000	'000
Water	**$1,491**	$1,153
Wastewater	**$2,425**	$2,526
Stormwater	**($271)**	$192
Net Surplus (Deficit)	**$3,645**	$3,871

Regulated and Unregulated Operations - Page 8

Results by Activity		
	2018/19	2017/18
	'000	'000
Regulated Activities	**$3,101**	$2,871
Unregulated Activities	**$544**	$1,000
Net Surplus (Deficit)	**$3,645**	$3,871

Key items to note:

- The profit decrease in unregulated activities is a result of the contract in the prior year to treat wastewater from the aircraft carrier that visited Halifax in the summer.

Results under International Financial Reporting Standards - Pages 9 & 10

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

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

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

The IFRS Net Profit for the year to date is $11.7 million.

ATTACHMENTS

Unaudited Operating Results for the five (5) months ended August 31, 2018

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, 2018

	2019 '000	2018 '000
ASSETS		
Cash	$54,064	$56,850
Accounts Receivable	$46,507	$43,968
Materials & Supplies	$1,528	$1,588
Prepaid Expenses	$500	$495
	$102,599	$102,901
Regulatory Asset	$3,117	$3,309
Plant in Service	$1,213,268	$1,158,210
Assets Under Construction	$38,383	$43,783
	$1,254,767	$1,205,302
Unamortized Debt Discount & Issue Expense	$841	$951
	$1,358,207	**$1,309,155**
LIABILITIES & CAPITAL		
Trade Payables & Accrued Liabilities	$17,554	$15,786
Deposits & Unearned Revenue	$7,131	$6,716
Current Portion of Long Term Debt	$22,630	$23,169
	$47,314	$45,671
Pension & Accrued Retirement Benefits	$71,113	$63,891
RDC & Special Purpose Reserves	$32,493	$19,898
Long Term Debt	$187,493	$198,473
Total Liabilities	$338,413	$327,934
Capital Surplus, Committed Reserves, & Accumulated OCI	$995,668	$960,673
Operating Surplus	$20,481	$16,677
Excess (Deficiency) of Revenue over Expenditure - Consolidated	$3,645	$3,871
Total Capital & Surplus	$1,019,794	$981,221
	$1,358,207	**$1,309,155**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - CONSOLIDATED
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
$12,529	$11,930	**OPERATING REVENUE**	$59,884	$58,823	$135,182	$136,607	43.84%
$7,895	$7,693	**OPERATING EXPENSES**	$41,527	$39,888	$108,770	$108,770	38.18%
$4,634	**$4,237**	**OPERATING PROFIT**	**$18,357**	**$18,935**	**$26,412**	**$27,837**	**65.94%**
		FINANCIAL REVENUE					
$95	$57	INVESTMENT INCOME	$409	$236	$480	$830	49.23%
$2	$167	PNS FUNDING HHSP DEBT	$0	$833	$0	$0	0.00%
$75	$97	MISCELLANEOUS	$325	$527	$526	$622	52.34%
$171	**$321**		**$734**	**$1,596**	**$1,006**	**$1,452**	**50.56%**
		FINANCIAL EXPENSES					
$633	$680	LONG TERM DEBT INTEREST	$3,175	$3,391	$8,560	$8,060	39.40%
$1,795	$1,834	LONG TERM DEBT PRINCIPAL	$8,857	$9,050	$22,601	$22,101	40.08%
$17	$17	AMORTIZATION DEBT DISCOUNT	$85	$85	$245	$245	34.54%
$417	$380	DIVIDEND/GRANT IN LIEU OF TAXES	$2,083	$1,989	$5,142	$4,999	41.67%
$27	$59	MISCELLANEOUS	$21	$62	$16	$16	133.01%
$2,888	**$2,970**		**$14,221**	**$14,576**	**$36,564**	**$35,421**	**40.15%**
$1,917	**$1,588**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$4,870**	**$5,955**	**($9,146)**	**($6,132)**	**179.42%**
		NON NSUARB ITEMS					
($245)	($417)	PENSION PLAN EXPENSE	($1,225)	($2,084)	($2,940)	($2,940)	41.67%
$0	$184	OTHER COMPREHENSIVE INCOME	$0	$919	$0	$0	0.00%
($245)	**($233)**		**($1,225)**	**($1,166)**	**($2,940)**	**($2,940)**	**41.67%**
$1,672	**$1,355**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$3,645**	**$4,789**	**($12,086)**	**($9,072)**	**140.18%**

HALIFAX WATER
UNAUDITED BALANCE SHEET
AS OF AUGUST 31, 2018

	2019 '000	2018 '000
ASSETS		
Cash	$54,064	$56,850
Accounts Receivable		
Customers & Contractual	$13,372	$13,459
Customers & Contractual - Unbilled Services	$18,355	$17,911
Halifax Regional Municipality	$14,780	$12,599
Materials & Supplies	$1,528	$1,588
Prepaid Expenses	$500	$495
	$102,599	$102,901
Regulatory Asset	$3,117	$3,309
Plant in Service - Water	$635,397	$600,104
Plant in Service - Wastewater	$761,829	$714,184
Plant in Service - Stormwater	$263,952	$245,193
Less: Accumulated Depreciation - Water	($184,956)	($170,893)
Accumulated Depreciation - Wastewater	($214,484)	($188,722)
Accumulated Depreciation - Stormwater	($48,470)	($41,656)
	$1,216,385	$1,161,519
Assets Under Construction	$38,383	$43,783
	$1,254,767	$1,205,302
Unamortized Debt Discount & Issue Expense	$841	$951
	$1,358,207	**$1,309,155**
LIABILITIES & CAPITAL		
Trade Payables	$12,254	$10,989
Interest on Long Term Debt	$2,507	$2,682
Halifax Regional Municipality	$2,792	$2,116
Contractor & Customer Deposits	$217	$204
Unearned Revenue	$6,914	$6,512
Current Portion of Long Term Debt	$22,630	$23,169
	$47,314	$45,671
Accrued Post-Retirement Benefits	$430	$341
Accrued Pre-Retirement Benefit	$3,972	$3,904
Deferred Pension Liability	$66,711	$59,646
Special Purpose Reserves not allocated to projects	$1,307	$1,222
Regional Development Charge	$31,186	$18,677
Long Term Debt-Water	$52,441	$56,844
Long Term Debt-Wastewater	$124,035	$130,332
Long Term Debt-Stormwater	$11,016	$11,297
Total Liabilities	$338,413	$327,934
Capital Surplus	$1,025,841	$988,177
Committed Reserves	$2,391	$2,391
Accumulated Other Comprehensive Income	($44,943)	($42,274)
Operating Surplus used to Fund Capital	$12,380	$12,380
Operating Surplus	$20,481	$16,677
Excess (Deficiency) of Revenue over Expenditure - Consolidated	$3,645	$3,871
Total Capital & Surplus	$1,019,794	$981,221
	$1,358,207	**$1,309,155**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - ALL SERVICES
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of BUDGET*	% of FORECAST
		REVENUE						
$4,383	$4,156	METERED SALES - WATER	$20,174	$19,983	$46,152	$46,152	43.71%	43.71%
$6,406	$6,116	METERED SALES - WASTEWATER	$31,033	$29,826	$67,601	$69,101	45.91%	44.91%
$520	$436	STORMWATER SITE GENERATED SERVICE	$2,614	$2,684	$6,752	$6,752	38.71%	38.71%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%	41.67%
$320	$309	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,603	$3,835	$3,835	41.67%	41.67%
$243	$259	OTHER SERVICES AND FEES	$1,163	$1,431	$2,905	$2,830	40.03%	41.09%
$31	$31	CUSTOMER LATE PAY./COLLECTION FEES	$170	$137	$491	$491	34.54%	34.54%
$38	$34	MISCELLANEOUS	$185	$213	$371	$371	49.93%	49.93%
$12,529	**$11,930**		**$59,884**	**$58,823**	**$135,182**	**$136,607**	**44.30%**	**43.84%**
		EXPENSES						
$600	$512	WATER SUPPLY & TREATMENT	$3,234	$2,749	$8,750	$8,750	36.96%	36.96%
$748	$740	TRANSMISSION & DISTRIBUTION	$3,798	$3,653	$10,323	$10,323	36.79%	36.79%
$853	$772	WASTEWATER COLLECTION	$4,448	$4,785	$10,622	$10,622	41.87%	41.87%
$1,418	$1,457	WASTEWATER TREATMENT PLANTS	$6,991	$7,453	$19,160	$19,160	36.49%	36.49%
$348	$295	STORMWATER COLLECTION	$2,014	$1,887	$5,239	$5,239	38.45%	38.45%
$232	$217	SMALL SYSTEMS AND OTHER SERVICES	$1,221	$1,076	$3,286	$3,286	37.17%	37.17%
$181	$158	SCADA, CONTROL & PUMPING	$944	$908	$2,565	$2,565	36.81%	36.81%
$618	$542	ENGINEERING & INFORMATION SERVICES	$3,440	$2,863	$8,177	$8,177	42.07%	42.07%
$234	$236	REGULATORY SERVICES	$1,362	$1,308	$3,763	$3,763	36.18%	36.18%
$373	$369	CUSTOMER SERVICE	$2,014	$1,935	$5,522	$5,522	36.48%	36.48%
$443	$566	ADMINISTRATION & PENSION	$2,823	$2,861	$7,929	$7,929	35.60%	35.60%
$1,848	$1,829	DEPRECIATION	$9,238	$8,411	$23,434	$23,434	39.42%	39.42%
$7,895	**$7,693**		**$41,527**	**$39,888**	**$108,770**	**$108,770**	**38.18%**	**38.18%**
$4,634	**$4,237**	**OPERATING PROFIT**	**$18,357**	**$18,935**	**$26,412**	**$27,837**	**69.50%**	**65.94%**
		FINANCIAL REVENUE						
$95	$57	INVESTMENT INCOME	$409	$236	$480	$830	85.12%	49.23%
$2	$167	PNS FUNDING HHSP DEBT	$0	$833	$0	$0	0.00%	0.00%
$75	$97	MISCELLANEOUS	$325	$527	$526	$622	61.90%	52.34%
$171	**$321**		**$734**	**$1,596**	**$1,006**	**$1,452**	**72.99%**	**50.56%**
		FINANCIAL EXPENSES						
$633	$680	LONG TERM DEBT INTEREST	$3,175	$3,391	$8,560	$8,060	37.10%	39.40%
$1,795	$1,834	LONG TERM DEBT PRINCIPAL	$8,857	$9,050	$22,601	$22,101	39.19%	40.08%
$17	$17	AMORTIZATION DEBT DISCOUNT	$85	$85	$245	$245	34.54%	34.54%
$417	$380	DIVIDEND/GRANT IN LIEU OF TAXES	$2,083	$1,989	$5,142	$4,999	40.51%	41.67%
$27	$59	MISCELLANEOUS	$21	$62	$16	$16	133.01%	133.01%
$2,888	**$2,970**		**$14,221**	**$14,576**	**$36,564**	**$35,421**	**38.89%**	**40.15%**
$1,917	**$1,588**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$4,870**	**$5,955**	**($9,146)**	**($6,132)**	**153.25%**	**179.42%**
		NON NSUARB ITEMS						
($245)	($417)	PENSION PLAN EXPENSE	($1,225)	($2,084)	($2,940)	($2,940)	41.67%	41.67%
$0	$184	OTHER COMPREHENSIVE INCOME	$0	$919	$0	$0	0.00%	0.00%
($245)	**($233)**		**($1,225)**	**($1,166)**	**($2,940)**	**($2,940)**	**41.67%**	**41.67%**
$1,672	**$1,355**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$3,645**	**$4,789**	**($12,086)**	**($9,072)**	**130.16%**	**140.18%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WATER OPERATIONS
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$4,383	$4,156	METERED SALES	$20,174	$19,983	$46,152	$46,152	43.71%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%
$67	$66	PRIVATE FIRE PROTECTION SERVICES	$358	$353	$860	$860	41.57%
$52	$48	BULK WATER STATIONS	$161	$169	$329	$329	48.94%
$16	$16	CUSTOMER LATE PAY./COLLECTION FEES	$94	$83	$233	$233	40.37%
$15	$13	MISCELLANEOUS	$76	$85	$154	$154	49.42%
$5,122	**$4,888**		**$23,810**	**$23,620**	**$54,803**	**$54,803**	**43.45%**
		EXPENSES					
$600	$512	WATER SUPPLY & TREATMENT	$3,234	$2,749	$8,750	$8,750	36.96%
$748	$740	TRANSMISSION & DISTRIBUTION	$3,798	$3,653	$10,323	$10,323	36.79%
$103	$94	SMALL SYSTEMS (inc. Contract Systems)	$529	$451	$1,194	$1,194	44.28%
$65	$56	SCADA, CONTROL & PUMPING	$346	$323	$965	$965	35.90%
$260	$248	ENGINEERING & INFORMATION SERVICES	$1,483	$1,332	$3,681	$3,681	40.27%
$56	$52	REGULATORY SERVICES	$305	$286	$997	$997	30.60%
$190	$188	CUSTOMER SERVICE	$1,026	$1,074	$2,813	$2,813	36.48%
$354	$509	ADMINISTRATION & PENSION	$2,078	$2,856	$5,538	$5,538	37.52%
$741	$712	DEPRECIATION	$3,703	$3,401	$9,229	$9,229	40.12%
$3,117	**$3,110**		**$16,502**	**$16,123**	**$43,490**	**$43,490**	**37.94%**
$2,005	**$1,778**	**OPERATING PROFIT**	**$7,309**	**$7,497**	**$11,313**	**$11,313**	**64.60%**
		FINANCIAL REVENUE					
$43	$26	INVESTMENT INCOME	$184	$106	$216	$380	48.52%
$66	$92	MISCELLANEOUS	$280	$198	$428	$524	53.33%
$109	**$118**		**$464**	**$304**	**$644**	**$904**	**51.31%**
		FINANCIAL EXPENSES					
$159	$184	LONG TERM DEBT INTEREST	$808	$918	$2,363	$2,163	37.35%
$677	$738	LONG TERM DEBT PRINCIPAL	$3,341	$3,642	$8,227	$8,027	41.62%
$8	$8	AMORTIZATION DEBT DISCOUNT	$38	$40	$108	$108	35.59%
$417	$380	DIVIDEND/GRANT IN LIEU OF TAXES	$2,083	$1,989	$5,142	$4,999	41.67%
$25	$59	MISCELLANEOUS	$12	$59	$11	$11	110.34%
$1,286	**$1,369**		**$6,282**	**$6,648**	**$15,850**	**$15,307**	**41.04%**
$828	**$527**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$1,491**	**$1,153**	**($3,893)**	**($3,090)**	**148.25%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WASTEWATER OPERATIONS
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$6,406	$6,116	METERED SALES	$31,033	$29,826	$67,601	$69,101	44.91%
$0	$19	WASTEWATER OVERSTRENGTH AGREEMENTS	$29	$182	$0	$40	71.78%
$24	$23	LEACHATE CONTRACT	$128	$124	$387	$387	32.96%
$6	$7	CONTRACT REVENUE	$33	$36	$86	$86	38.84%
$17	$17	DEWATERING FACILITY/SLUDGE LAGOON	$87	$87	$210	$210	41.66%
$0	$0	AIRLINE EFFLUENT	$30	$31	$118	$118	25.42%
$75	$79	SEPTAGE TIPPING FEES	$337	$449	$915	$800	42.16%
$14	$15	CUSTOMER LATE PAY./COLLECTION FEES	$72	$60	$238	$238	30.12%
$13	$12	MISCELLANEOUS	$67	$72	$128	$128	52.13%
$6,555	**$6,289**		**$31,815**	**$30,867**	**$69,683**	**$71,108**	**44.74%**
		EXPENSES					
$853	$772	WASTEWATER COLLECTION	$4,448	$4,785	$10,622	$10,622	41.87%
$1,418	$1,457	WASTEWATER TREATMENT PLANTS	$6,991	$7,453	$19,160	$19,160	36.49%
$101	$90	SMALL SYSTEMS	$496	$482	$1,323	$1,323	37.48%
$7	$12	DEWATERING FACILITY/ SLUDGE MGM'T	$85	$35	$331	$331	25.72%
$0	$0	BIOSOLIDS TREATMENT	$0	$0	$101	$101	0.41%
$21	$20	LEACHATE CONTRACT	$111	$107	$337	$337	32.96%
$112	$99	SCADA, CONTROL & PUMPING	$578	$566	$1,563	$1,563	37.00%
$308	$253	ENGINEERING & INFORMATION SERVICES	$1,684	$1,317	$3,400	$3,400	49.51%
$70	$84	REGULATORY SERVICES	$356	$458	$1,133	$1,133	31.39%
$157	$156	CUSTOMER SERVICE	$850	$740	$2,455	$2,455	34.60%
$287	$408	ADMINISTRATION & PENSION	$1,694	$1,797	$4,585	$4,585	36.95%
$1,031	$1,068	DEPRECIATION	$5,155	$4,710	$13,251	$13,251	38.90%
$4,366	**$4,419**		**$22,447**	**$22,452**	**$58,262**	**$58,262**	**38.53%**
$2,190	**$1,870**	**OPERATING PROFIT**	**$9,368**	**$8,415**	**$11,420**	**$12,845**	**72.93%**
		FINANCIAL REVENUE					
$43	$26	INVESTMENT INCOME	$183	$106	$216	$380	48.28%
$2	$167	PNS FUNDING HHSP DEBT	$0	$833	$0	$0	0.00%
$9	$5	MISCELLANEOUS	$46	$330	$97	$97	47.00%
$53	**$197**		**$229**	**$1,269**	**$313**	**$477**	**48.02%**
		FINANCIAL EXPENSES					
$427	$418	LONG TERM DEBT INTEREST	$2,135	$2,087	$5,427	$5,227	40.85%
$1,010	$1,019	LONG TERM DEBT PRINCIPAL	$4,986	$5,028	$12,783	$12,583	39.62%
$8	$8	AMORTIZATION DEBT DISCOUNT	$42	$40	$119	$119	35.31%
$2	$0	MISCELLANEOUS	$9	$3	$5	$5	180.69%
$1,448	**$1,446**		**$7,172**	**$7,158**	**$18,334**	**$17,934**	**39.99%**
$795	**$622**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$2,425**	**$2,526**	**($6,600)**	**($4,611)**	**152.60%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - STORMWATER OPERATIONS
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$520	$436	STORMWATER SITE GENERATED SERVICE	$2,614	$2,684	$6,752	$6,752	38.71%
$320	$309	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,603	$3,835	$3,835	41.67%
$1	$0	CUSTOMER LATE PAY./COLLECTION FEES	$4	($7)	$21	$21	19.56%
$11	$8	MISCELLANEOUS	$42	$56	$89	$89	47.63%
$852	**$753**		**$4,258**	**$4,336**	**$10,696**	**$10,696**	**39.81%**
		EXPENSES					
$348	$295	STORMWATER COLLECTION	$2,014	$1,887	$5,239	$5,239	38.45%
$4	$3	SCADA, CONTROL & PUMPING	$19	$19	$37	$37	52.46%
$50	$41	ENGINEERING & INFORMATION SERVICES	$274	$214	$1,095	$1,095	25.00%
$107	$100	REGULATORY SERVICES	$701	$563	$1,634	$1,634	42.90%
$26	$25	CUSTOMER SERVICE	$138	$120	$253	$253	54.62%
$47	$66	ADMINISTRATION & PENSION	$276	$292	$746	$746	36.95%
$76	$50	DEPRECIATION	$381	$300	$954	$954	39.93%
$658	**$581**		**$3,803**	**$3,397**	**$9,958**	**$9,958**	**38.19%**
$194	**$172**	**OPERATING PROFIT**	**$455**	**$939**	**$738**	**$738**	**61.63%**
		FINANCIAL REVENUE					
$10	$6	INVESTMENT INCOME	$41	$24	$48	$70	58.24%
$0	$0	MISCELLANEOUS	$0	$0	$0	$0	0.00%
$10	**$6**		**$41**	**$24**	**$48**	**$70**	**58.24%**
		FINANCIAL EXPENSES					
$47	$78	LONG TERM DEBT INTEREST	$232	$386	$770	$670	34.64%
$107	$77	LONG TERM DEBT PRINCIPAL	$531	$380	$1,591	$1,491	35.59%
$1	$1	AMORTIZATION DEBT DISCOUNT	$4	$4	$18	$18	23.32%
$155	**$156**		**$767**	**$770**	**$2,379**	**$2,179**	**35.19%**
$48	**$22**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**($271)**	**$192**	**($1,593)**	**($1,371)**	**19.78%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - REGULATED AND UNREGULATED OPERATIONS
APRIL 1/18 - AUGUST 31/19 (5 MONTHS)
41.67%

DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR	ACTUAL (YEAR TO DATE) LAST YEAR	APR 1/18 MAR 31/19 BUDGET*	APR 1/18 MAR 31/19 FORECAST	% of FORECAST
REGULATED ACTIVITIES					
REVENUE					
METERED SALES	$53,820	$52,493	$120,505	$122,005	44.11%
FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%
PRIVATE FIRE PROTECTION	$358	$353	$860	$860	41.57%
STORMWATER SERVICE	$1,598	$1,603	$3,835	$3,835	41.67%
OTHER OPERATING REVENUE	$529	$685	$1,154	$1,194	44.28%
	$59,252	**$58,081**	**$133,429**	**$134,969**	**43.90%**
EXPENSES					
WATER SUPPLY & TREATMENT	$3,234	$2,749	$8,750	$8,750	36.96%
TRANSMISSION & DISTRIBUTION	$3,798	$3,653	$10,323	$10,323	36.79%
WASTEWATER & STORMWATER COLLECTION	$6,445	$6,670	$15,753	$15,753	40.91%
WASTEWATER TREATMENT PLANTS	$6,991	$7,453	$19,160	$19,160	36.49%
SMALL SYSTEMS	$1,017	$926	$2,492	$2,492	40.80%
SCADA, CONTROL & PUMPING	$944	$908	$2,565	$2,565	36.81%
ENGINEERING & INFORMATION SERVICES	$3,440	$2,863	$8,177	$8,177	42.07%
REGULATORY SERVICES	$1,362	$1,308	$3,763	$3,763	36.18%
CUSTOMER SERVICE	$1,999	$1,920	$5,487	$5,487	36.44%
ADMINISTRATION & PENSION	$4,029	$4,924	$10,639	$10,639	37.88%
DEPRECIATION	$9,231	$8,409	$23,416	$23,416	39.42%
	$42,489	**$41,782**	**$110,524**	**$110,524**	**38.44%**
FINANCIAL REVENUE					
INVESTMENT INCOME	$409	$236	$480	$830	49.23%
MISCELLANEOUS	$130	$851	$110	$206	63.20%
	$539	**$1,087**	**$590**	**$1,036**	**52.01%**
FINANCIAL EXPENSES					
LONG TERM DEBT INTEREST	$3,175	$3,391	$8,560	$8,060	39.40%
LONG TERM DEBT PRINCIPAL	$8,857	$9,050	$22,601	$22,101	40.08%
AMORTIZATION DEBT DISCOUNT	$85	$85	$245	$245	34.54%
DIVIDEND/GRANT IN LIEU OF TAXES	$2,083	$1,989	$5,142	$4,999	41.67%
	$14,200	**$14,514**	**$36,548**	**$35,405**	**40.11%**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	**$3,101**	**$2,871**	**($13,053)**	**($9,924)**	**131.25%**
UNREGULATED ACTIVITIES					
REVENUE					
SEPTAGE TIPPING FEES	$337	$449	$915	$800	42.16%
LEACHATE CONTRACT	$128	$124	$387	$387	32.96%
CONTRACT REVENUE	$33	$36	$86	$86	38.84%
DEWATERING	$87	$87	$210	$210	41.66%
AIRLINE EFFLUENT	$30	$31	$118	$118	25.42%
ENERGY PROJECTS	$67	$62	$167	$167	40.05%
MISCELLANEOUS	$16	$16	$37	$37	42.71%
	$698	**$805**	**$1,919**	**$1,804**	**38.69%**
EXPENSES					
WATER SUPPLY & TREATMENT	$8	$6	$25	$25	32.10%
WASTEWATER TREATMENT	$214	$145	$877	$877	24.35%
SPONSORSHIPS & DONATIONS	$33	$36	$266	$266	12.52%
DEPRECIATION	$7	$2	$18	$18	0.00%
	$262	**$190**	**$1,186**	**$1,186**	**22.13%**
FINANCIAL REVENUE					
MISCELLANEOUS	$128	$447	$249	$249	51.59%
	$128	**$447**	**$249**	**$249**	**51.59%**
FINANCIAL EXPENSES					
MISCELLANEOUS	$21	$62	$16	$16	133.01%
	$21	$62	$16	$16	**133.01%**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	**$544**	**$1,000**	**$967**	**$852**	**63.81%**
NET PROFIT (LOSS) AVAILABLE FOR TOTAL CAPITAL EXPENDITURES (REG & UNREG)	**$3,645**	**$3,871**	**($12,086)**	**($9,072)**	**140.18%**

HALIFAX WATER
UNAUDITED BALANCE SHEET - IFRS FORMAT
AS OF AUGUST 31, 2018

	2019 '000	2018 '000
ASSETS		
Cash	$54,064	$56,850
Accounts Receivable		
Customers & Contractual	$13,372	$13,459
Customers & Contractual - Unbilled Services	$18,355	$17,911
Halifax Regional Municipality	$14,780	$12,599
Materials & Supplies	$1,528	$1,588
Prepaid Expenses	$500	$495
	$102,599	$102,901
Regulatory Asset	$3,117	$3,309
Plant in Service - Water	$635,397	$600,104
Plant in Service - Wastewater	$761,829	$714,184
Plant in Service - Stormwater	$263,952	$245,193
Less: Accumulated Depreciation - Water	($192,805)	($179,355)
Accumulated Depreciation - Wastewater	($221,856)	($197,523)
Accumulated Depreciation - Stormwater	($48,467)	($41,654)
	$1,201,166	$1,144,257
Assets Under Construction	$38,383	$43,783
	$1,239,549	$1,188,041
Unamortized Debt Discount & Issue Expense	$841	$951
	$1,342,989	**$1,291,893**
LIABILITIES		
Trade Payables	$12,254	$10,989
Interest on Long Term Debt	$2,507	$2,682
Halifax Regional Municipality	$2,792	$2,116
Contractor & Customer Deposits	$217	$204
Unearned Revenue	$6,914	$6,512
Current Portion of Deferred Contributed Capital	$13,405	$12,889
Current Portion of Long Term Debt	$22,630	$23,169
	$60,719	$58,560
Accrued Post-Retirement Benefits	$430	$341
Accrued Pre-Retirement Benefit	$3,972	$3,904
Deferred Pension Liability	$66,711	$59,646
Deferred Contributed Capital	$844,280	$812,089
Long Term Debt-Water	$52,441	$56,844
Long Term Debt-Wastewater	$124,035	$130,332
Long Term Debt-Stormwater	$11,016	$11,297
Total Liabilities	$1,163,605	$1,133,014
EQUITY		
Accumulated Other Comprehensive Income	($44,943)	($42,274)
Accumulated Surplus	$212,604	$190,822
Excess (Deficiency) of Revenue over Expenditure	$11,723	$10,331
Total Equity	$179,383	$158,879
	$1,342,989	**$1,291,893**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - IFRS FORMAT - ALL SERVICES
APRIL 1/18 - 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 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of BUDGET*	% of FORECAST
		REVENUE						
$4,383	$4,156	METERED SALES - WATER	$20,174	$19,983	$46,152	$46,152	43.71%	43.71%
$6,406	$6,116	METERED SALES - WASTEWATER	$31,033	$29,826	$67,601	$69,101	45.91%	44.91%
$520	$436	STORMWATER SITE GENERATED SERVICE	$2,614	$2,684	$6,752	$6,752	38.71%	38.71%
$590	$590	FIRE PROTECTION	$2,948	$2,948	$7,074	$7,074	41.67%	41.67%
$320	$309	STORMWATER RIGHT OF WAY SERVICE	$1,598	$1,603	$3,835	$3,835	41.67%	41.67%
$243	$259	OTHER SERVICES AND FEES	$1,163	$1,431	$2,905	$2,830	40.03%	41.09%
$31	$31	CUSTOMER LATE PAY./COLLECTION FEES	$170	$137	$491	$491	34.54%	34.54%
$38	$34	MISCELLANEOUS	$185	$213	$371	$371	49.93%	49.93%
$12,529	**$11,930**		**$59,884**	**$58,823**	**$135,182**	**$136,607**	**44.30%**	**43.84%**
		EXPENSES						
$600	$512	WATER SUPPLY & TREATMENT	$3,234	$2,749	$8,750	$8,750	36.96%	36.96%
$748	$740	TRANSMISSION & DISTRIBUTION	$3,798	$3,653	$10,323	$10,323	36.79%	36.79%
$853	$772	WASTEWATER COLLECTION	$4,448	$4,785	$10,622	$10,622	41.87%	41.87%
$1,418	$1,457	WASTEWATER TREATMENT PLANTS	$6,991	$7,453	$19,160	$19,160	36.49%	36.49%
$348	$295	STORMWATER COLLECTION	$2,014	$1,887	$5,239	$5,239	38.45%	38.45%
$232	$217	SMALL SYSTEMS AND OTHER SERVICES	$1,221	$1,076	$3,286	$3,286	37.17%	37.17%
$181	$158	SCADA, CONTROL & PUMPING	$944	$908	$2,565	$2,565	36.81%	36.81%
$618	$542	ENGINEERING & INFORMATION SERVICES	$3,440	$2,863	$8,177	$8,177	42.07%	42.07%
$234	$236	REGULATORY SERVICES	$1,362	$1,308	$3,763	$3,763	36.18%	36.18%
$373	$369	CUSTOMER SERVICE	$2,014	$1,935	$5,522	$5,522	36.48%	36.48%
$688	$983	ADMINISTRATION & PENSION	$4,048	$4,945	$10,869	$10,869	37.24%	37.24%
$3,583	$5,244	DEPRECIATION	$17,338	$18,655	$23,434	$35,959	73.99%	48.22%
$9,875	**$11,525**		**$50,851**	**$52,217**	**$111,710**	**$124,235**	**45.52%**	**40.93%**
$2,654	**$405**	**OPERATING PROFIT**	**$9,032**	**$6,606**	**$23,472**	**$12,372**	**38.48%**	**73.01%**
		FINANCIAL REVENUE						
$95	$57	INVESTMENT INCOME	$409	$236	$480	$830	85.12%	49.23%
$2	$167	PNS FUNDING HHSP DEBT	$0	$833	$0	$0	0.00%	0.00%
$1,523	$2,917	MISCELLANEOUS	$7,568	$8,111	$526	$13,051	1440.01%	57.99%
$1,620	**$3,141**		**$7,976**	**$9,181**	**$1,006**	**$13,881**	**793.25%**	**57.47%**
		FINANCIAL EXPENSES						
$633	$680	LONG TERM DEBT INTEREST	$3,175	$3,391	$8,560	$8,060	37.10%	39.40%
$17	$17	AMORTIZATION DEBT DISCOUNT	$85	$85	$245	$245	34.54%	34.54%
$417	$380	DIVIDEND/GRANT IN LIEU OF TAXES	$2,083	$1,989	$5,142	$4,999	40.51%	41.67%
$27	$59	MISCELLANEOUS	($57)	($9)	$12	$12	-463.56%	-463.56%
$1,094	**$1,137**		**$5,286**	**$5,456**	**$13,959**	**$13,317**	**37.87%**	**39.69%**
$3,180	**$2,410**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$11,723**	**$10,331**	**$10,518**	**$12,936**	**111.46%**	**90.62%**
$0	$184	**OTHER COMPREHENSIVE INCOME**	$0	$919	$0	$0	0.00%	0.00%
$3,180	**$2,593**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$11,723**	**$11,250**	**$10,518**	**$12,936**	**111.46%**	**90.62%**

Halifax Water
Halifax Regional Water Commission

ITEM #4.2
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*

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

APPROVED: *Original Signed By:*

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

DATE: September 21, 2018

SUBJECT: **Capital Project Spending Summary – 2017/18**

ORIGIN

NSUARB requirement for reconciliation of Capital Budget expenditures.

RECOMMENDATION

It is recommended that the Halifax Water Board approve the individual project over expenditures as identified within Attachment 2, "*Capital Project Spending Summary, Apr 1, 2017 – March 31, 2018*" and direct staff to forward the subset of projects "over $250,000" to the NSUARB for information and approval.

BACKGROUND

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

DISCUSSION

During the 2017/18 fiscal year, a series of capital projects were completed, placed in service, and "closed out" from a fiscal work order perspective. These projects were funded from the 2017/18 Capital Budget and previous years' capital budgets for projects with multi-year delivery time lines.

The first attached report entitled, "Capital Project Spending Summary, April 1, 2017 to March 31, 2018", identifies all capital projects funded from the Halifax Water Capital Budget that were completed prior to March 31, 2018. For water projects, the total expenditure for these completed projects totals $33,043,440, with an aggregate net surplus of $2,245,233 relative to the total funding approvals. For wastewater projects, the total expenditure for these completed projects totals $43,714,538, with an aggregate net surplus of $1,993,160. For stormwater projects, the total expenditures for these completed projects totals $14,548,009, with an aggregate net surplus of $323,122.

The second attached report entitled, "Capital Project Spending Summary – Projects Over $250,000, April 1, 2017 to March 31, 2018", identifies all capital projects funded from the Halifax Water Capital Budget that were completed prior to March 31, 2018 that required specific NSUARB approval based on the $250,000 threshold. For water projects, the total expenditure for these completed projects totals $28,482,344, with an aggregate net surplus of $1,231,839. For wastewater projects, the total expenditure for these completed projects totals $39,376,383, with an aggregate net deficit of $831,926. For stormwater projects, the total expenditure for these completed projects totals $13,271,192, with an aggregate net deficit of $289,061. The "Projects Over $250,000" will be forwarded to the NSUARB as part of our annual financial submission requirements.

Halifax Water's Capital Funding Policy requires all material funding increases for capital projects to be approved at the time of the funding need. This process promotes fiscal accountability and improves management of available funds.

The Board will note that a variety of the projects from the 2017/18 Summary Report were completed with final expenditures greater than the original budget. Staff is seeking HRWC Board approval for these expenditures with funding available from the identified surpluses as per the BUDGET IMPLICATIONS section of this report.

BUDGET IMPLICATIONS

Water capital projects closed during the fiscal year 2017/18 represent an approved total budget of $35,288,673 and when compared to the actual total project costs of $33,043,440, results in a net surplus of $2,245,233. This aggregate net difference represents a surplus which can be utilized for capital funding sources in future years, and for funding 2017/18 and previous years' projects not yet completed

Wastewater capital projects closed during the fiscal year 2017/18 represent an approved total budget of $45,707,689, and when compared to the actual total project costs of $43,714,538, results in a net difference of $1,993,160. This aggregate net difference represents a surplus which can be utilized for capital funding sources in future years, and for funding 2017/18 and previous years' capital projects not yet completed.

Stormwater capital projects closed during the fiscal year 2017/18 represent an approved total budget of $14,871,131, and when compared to the actual total project costs of $14,548,990 results in a net difference of $323,122. This aggregate net difference represents a surplus which can be utilized for capital funding sources in future years, and for funding 2017/18 and previous years' capital projects not yet completed.

ATTACHMENTS

Attachment 1 - Capital Project Spending Summary, April 1, 2017 – March 31, 2018

Attachment 2 - Capital Project Spending Summary
Projects over $250,000, April 1, 2017 - March 31, 2018

Report Prepared by: *Original Signed By:*
Michelle Bennett, B.Comm
Accountant, 902-490-5242

Financial Review by: *Original Signed By:*
Allan Campbell, B.Comm, CPA, CMA
Manager, Finance, 902-490-4288

Capital Project Spending Summary

April 1, 2017 - March 31, 2018

ITEM # 4.2
HRWC BOARD
September 27, 2018
ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/17	Project Budget	Over Budget	(Under Budget)
300000721	SAP CCS SERVICE APPROVAL ENHANCEMENTS	23-Nov-06	13-Dec-06	0.00	25,000.00	$0.00	($25,000.00)
300001409	ELECTRICAL IMPROVEMENTS - COWIE BOOSTER	16-Apr-10	N/A	6,373.19	24,000.00	$0.00	($17,626.81)
300001467	BLT CCC COST TRACKING 2010	16-Aug-10	N/A	42,772.83	10,000.00	$32,772.83	$0.00
300001609	CHEMICAL FEED PUMP REPLACE PROG JD KLINE	22-Mar-12	N/A	374,321.54	324,000.00	$50,321.54	$0.00
300001743	RUSSELL LAKE CCC - VARIOUS PHASES 13/14	1-Mar-13	N/A	0.00	25,000.00	$0.00	($25,000.00)
300001845	BL MISC UPGRADES PROCESS OPTIMIZATION	24-Sep-13	N/A	200,258.09	199,000.00	$1,258.09	$0.00
300001894	CENTRAL REGION ZONE METER REPLACEMENT	10-Mar-14	N/A	17,860.39	34,000.00	$0.00	($16,139.61)
300001905	AUTOMATED FLUSHING STATION	17-Mar-14	N/A	14,377.10	15,000.00	$0.00	($622.90)
300001923	CRITICAL VALVE REPLACE BEDFORD HIGHWAY	27-Mar-13	N/A	77,815.85	97,000.00	$0.00	($19,184.15)
300001946	AMI ASSESSMENT & FEASIBILITY STUDY PH 2	27-Mar-14	N/A	11,618.33	50,000.00	$0.00	($38,381.67)
300001952	BENNERY LAKE OXYGENATION	5-Jun-14	N/A	34,507.26	45,000.00	$0.00	($10,492.74)
300002061	KEARNEY LAKE RD TRANS MAIN FINAL PAVING	12-Mar-15	N/A	104,270.25	130,000.00	$0.00	($25,729.75)
300002071	MACDONALD BRIDGE TRANSMISSION MAIN	26-Feb-15	13-Apr-15	6,963,914.89	7,394,000.00	$0.00	($430,085.11)
300002084	AMI: IMPLEMENTATION PLANNING & PREP	3-Mar-16	N/A	241,407.20	240,000.00	$1,407.20	$0.00
300002100	GIS HARDWARE/SOFTWARE PROGRAM (W)	13-Apr-16	12-Aug-16	76,651.70	77,500.00	$0.00	($848.30)
300002101	GIS APPLICATION SUPPORT PROGRAM (W)	13-Apr-16	N/A	75,139.80	125,000.00	$0.00	($49,860.20)
300002107	ASSET MANAGEMENT PROGRAM PHASE 4 (W)	22-Jan-16	N/A	15,012.25	15,000.00	$12.25	$0.00
300002110	WATER / WW MODELING TOOLS EVALUATION (W)	26-Jan-16	N/A	18,859.16	20,000.00	$0.00	($1,140.84)
300002111	ASSET MGMT SOFTWARE & TOOLS (W)	26-Jan-16	N/A	18,978.62	25,000.00	$0.00	($6,021.38)
300002118	SCADA CONTROL SYSTEM ENHANCEMENTS (W)	13-Jul-15	N/A	95,878.67	100,000.00	$0.00	($4,121.33)
300002191	GIS DATA PLAN WOODLAWN FOREST HILLS (W)	23-Apr-15	30-Jul-15	155,336.56	125,000.00	$30,336.56	$0.00
300002192	AMI & MDMS REQUIREMENTS GENERATION	7-May-15	N/A	253,152.45	249,800.00	$3,352.45	$0.00
300002220	CMMS PHASE 2B (W)	24-Jul-15	15-Oct-15	2,110,773.21	2,250,500.00	$0.00	($139,726.79)
300002264	GEORGE DAUPHINEE DR WM RENEWAL 16/17	20-Jan-16	24-Mar-16	510,588.67	520,000.00	$0.00	($9,411.33)
300002304	SCARLET ROAD W/M RENEWAL 16/17	20-Jan-16	24-Mar-16	307,746.85	364,000.00	$0.00	($56,253.15)
300002305	LAYTON ROAD W/M RENEWAL 16/17	20-Jan-16	24-Mar-16	372,584.16	350,000.00	$22,584.16	$0.00
300002317	Bedford Connector Trans Main Ph 3 DESIGN	22-Feb-16	31-Mar-17	3,368,492.44	3,551,873.00	$0.00	($183,380.56)
300002335	Relocate CT Calculation Eq Lucasville	22-Feb-16	N/A	40,430.85	31,000.00	$9,430.85	$0.00
300002339	CSE Retrofit - Bridgeview PRV Chamber	22-Feb-16	N/A	55,375.44	79,000.00	$0.00	($23,624.56)
300002340	Robie 2 Chamber Upgrades	19-Feb-16	N/A	113,635.03	115,000.00	$0.00	($1,364.97)
300002344	JDK New Laptop System Backwash Filters	8-Mar-16	N/A	11,729.66	12,000.00	$0.00	($270.34)
300002347	LM WSP Chemical Feed Pumps	8-Mar-16	N/A	72,904.94	85,000.00	$0.00	($12,095.06)
300002349	LM WSP New Diesel Generator	18-Feb-16	6-Apr-16	1,978,311.67	1,955,000.00	$23,311.67	$0.00
300002354	LM WSP Purchase Fluorescence Meter	8-Mar-16	N/A	57,312.51	90,000.00	$0.00	($32,687.49)
300002358	BL WSP Low Lift VFD Pump Replace Prog	19-Aug-16	N/A	100,708.38	110,000.00	$0.00	($9,291.62)
300002361	BL WSP Plate Settlers	15-Apr-16	4-May-16	434,762.28	440,000.00	$0.00	($5,237.72)
300002363	Inline Zeta Potential Meters for WSPs	8-Mar-16	N/A	91,144.18	100,000.00	$0.00	($8,855.82)
300002364	Water Plants: Purchase Particle Counters	8-Mar-16	N/A	82,344.84	85,000.00	$0.00	($2,655.16)
300002371	Security Upgrade Program 16/17 (W)	28-Jul-16	N/A	63,101.89	50,000.00	$13,101.89	$0.00
300002378	TOPSAIL CONTROL CHAMBER CSE RETROFIT	22-Feb-16	N/A	55,999.13	43,000.00	$12,999.13	$0.00
300002379	IS STRATEGY (W)	3-Mar-16	N/A	143,747.03	142,500.00	$1,247.03	$0.00

Capital Project Spending Summary

April 1, 2017 - March 31, 2018

ITEM # 4.2
HRWC BOARD
September 27, 2018
ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/17	Project Budget	Over Budget	(Under Budget)
300002412	GIS DATA PROGRAM 16/17	26-Nov-16	6-Jan-17	15,724.77	500,000.00	$0.00	($484,275.23)
300002417	ASSET MGMT PROGRAM DEVELOPMENT 16/17	1-Sep-16	N/A	5,436.10	15,000.00	$0.00	($9,563.90)
300002420	PURCHASE MODELLING SOFTWARE (w)	24-Mar-17	N/A	69,001.03	70,000.00	$0.00	($998.97)
300002421	ASSESS AM SOFTWARE & TOOLS	1-Sep-16	N/A	14,392.48	15,000.00	$0.00	($607.52)
300002427	PARMBELLE LANE W/M RENEWAL 16/17	20-Jan-16	24-Mar-16	188,083.43	229,000.00	$0.00	($40,916.57)
300002442	JD KLINE WSP BUILDING - ROOF RENEWAL	15-Sep-16	N/A	327,091.63	390,000.00	$0.00	($62,908.37)
300002444	CSE RETROFITS-SACKVILLE PRV	31-Aug-16	N/A	36,449.40	45,500.00	$0.00	($9,050.60)
300002465	JD KLINE WSP - UPS SYSTEM REPLACEMENT	12-Oct-16	N/A	22,366.70	30,000.00	$0.00	($7,633.30)
300002466	BEFORD WEST CCC (W) 16/17 PH 2-4A	12-Oct-16	N/A	0.00	5,000.00	$0.00	($5,000.00)
300002469	GUNITE RESERVOIR INSPECTION	3-Nov-16	N/A	108,643.05	110,000.00	$0.00	($1,356.95)
300002470	QUINPOOL RD/PENINSULA WATER TM REHAB	3-Nov-16	10-Apr-17	7,148,051.76	7,655,000.00	$0.00	($506,948.24)
300002481	LAND PURCHASE - BENNERY LAKE WATERSHED	9-Nov-16	3-Nov-16	312,951.00	340,000.00	$0.00	($27,049.00)
300002482	WIRING UPDATES - WSP VARIOUS	22-Nov-16	N/A	168,083.77	150,000.00	$18,083.77	$0.00
300002500	OPERATIONS EQUIPMENT PURCHASE	23-Nov-16	N/A	24,980.74	34,000.00	$0.00	($9,019.26)
300002507	MISHRA - DAVID LANDS - BL WATERSHED	13-Dec-16	N/A	210,578.32	229,000.00	$0.00	($18,421.68)
300002509	BLDG IMPROVEMENTS 450 COWIE (CS AREA)	10-Jan-17	N/A	46,988.08	58,000.00	$0.00	($11,011.92)
300002520	ST MARGARET'S BAY RD 2017 IP (W)	18-Jan-17		548,589.55	545,000.00	$3,589.55	$0.00
300002528	INTERIM ENGINEERING APPROVALS SYSTEM	30-Jan-17	N/A	60,715.80	75,000.00	$0.00	($14,284.20)
300002541	RECORD DRAWING (CPLT WOs) 17/18	22-Feb-17	N/A	9,517.80	0.00	$9,517.80	$0.00
300002542	GIS UPDATING (COMPLETED WOs) 17/18	22-Feb-17	N/A	38,237.53	0.00	$38,237.53	$0.00
300002558	WEST BEDFORD PHASE 2-5A	20-Mar-17	n/a	6,942.97	8,374.22	$0.00	($1,431.25)
300002559	WEST BEDFORD PHASE 2-5B	20-Mar-17	n/a	2,764.88	2,595.01	$169.87	$0.00
300002560	WEST BEDFORD PHASE 2-5C	20-Mar-17	n/a	702.44	1,712.28	$0.00	($1,009.84)
300002564	VALVE RENEWALS 17/18	31-Mar-17	13-Apr-17	64,549.42	125,000.00	$0.00	($60,450.58)
300002565	HYDRANT RENEWALS 17/18	31-Mar-17	13-Apr-17	59,771.27	75,000.00	$0.00	($15,228.73)
300002566	SERVICE LINE RENEWALS 17/18	31-Mar-17	13-Apr-17	109,702.60	100,000.00	$9,702.60	$0.00
300002567	LEAD SERVICE LINE REPLACEMENT PROGRAM	31-Mar-17	13-Apr-17	474,521.70	400,000.00	$74,521.70	$0.00
300002569	BULK FILL STNS - SITE WORK IMPROVEMENTS	29-Mar-17	n/a	94,464.59	110,000.00	$0.00	($15,535.41)
300002571	RE-CHLORINATION STNS-SAMPSON & STOKIL	29-Mar-17	n/a	30,040.69	30,000.00	$40.69	$0.00
300002572	DIST SYS CHLORINE RESID ANALYZER PROGRAM	29-Mar-17	n/a	99,419.96	100,000.00	$0.00	($580.04)
300002577	GEIZER 158 DRAINAGE IMPROVEMENTS	28-Mar-17	n/a	89,444.76	83,000.00	$6,444.76	$0.00
300002581	450 COWIE-NEW DR7000 FOR LAB	28-Mar-17	n/a	12,865.92	14,000.00	$0.00	($1,134.08)
300002582	CHLORINE ANALYZER RELOCATION-158 GEIZER	27-Mar-17	n/a	34,139.91	33,000.00	$1,139.91	$0.00
300002594	BENCH TOP TURBIDIMETER	29-Mar-17	n/a	5,266.44	6,000.00	$0.00	($733.56)
300002597	MCC CONTACTORS REPLACEMENT-LK MAJOR	28-Mar-17	n/a	38,499.05	34,000.00	$4,499.05	$0.00
300002598	BUTTERFLY VALVE REPL PROG-LK MAJOR	29-Mar-17	n/a	98,474.59	100,000.00	$0.00	($1,525.41)
300002617	NEW CHLORINE ANALYZER	28-Mar-17	n/a	4,581.80	14,000.00	$0.00	($9,418.20)
300002618	SLUDGE PUMPS AND VALVE REPLACEMENTS	28-Mar-17	n/a	8,252.55	53,000.00	$0.00	($44,747.45)
300002623	DESKTOP COMPUTER REPLACEMENT 17/18 (W)	28-Mar-17	13-Apr-17	122,949.05	145,000.00	$0.00	($22,050.95)
300002624	NETWORK INFRASTRUCTURE UPGRADE 17/18 (W)	28-Mar-17	13-Apr-17	98,989.80	110,000.00	$0.00	($11,010.20)
300002641	450 COWIE RENOVATION 17/18 (W)	7-Mar-18	n/a	58,502.82	68,000.00	$0.00	($9,497.18)

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300002644	METERS 17/18 (LARGE/NEW) (W)	31-Mar-17	13-Apr-17	475,167.89	460,000.00	$15,167.89	$0.00
300002645	FLEET UPGRADE 17/18 (W)	31-Mar-17	13-Apr-17	500,496.02	505,000.00	$0.00	($4,503.98)
300002647	PURCHASE ACOUSTIC LISTENING EQUIPMENT-W	6-Jun-17	n/a	13,900.35	15,000.00	$0.00	($1,099.65)
300002649	HALIFAX WATER MOBILE EVENT TRAILER	21-Jun-17	n/a	64,324.92	60,000.00	$4,324.92	$0.00
300002653	WEST BEDFORD PH 9A	31-Jul-17	n/a	6,100.50	2,318.49	$3,782.01	$0.00
300002658	LAND PURCHASE PID40149668 (BENNERY)	14-Aug-17	n/a	68,658.22	75,000.00	$0.00	($6,341.78)
300002660	GIS HOSTING IMPLEMENTATION (W)	25-Sep-17	n/a	95,140.83	110,000.00	$0.00	($14,859.17)
300002662	BENNERY LAKE WSP-RAPID MIXER REPLACEMENT	20-Sep-17	n/a	157,906.04	210,000.00	$0.00	($52,093.96)
300002813	AMI METERS 17/18	31-Mar-18	n/a	2,020,816.02	2,020,000.00	$816.02	$0.00
Water Capital Difference				**$33,043,440.23**	**$35,288,673.00**	**$392,173.72**	**($2,637,406.49)**
						($2,245,232.77)	
600000449	NORTHWEST ARM SEWER REHAB 2010	20-Jul-10	29-Jul-10	23,177,600.35	23,180,557.00	$0.00	($2,956.65)
600000808	BIOSOLIDS FAC - INVESTIGATE VENT SYSTEM	3-Oct-13	N/A	41,854.07	41,854.07	$0.00	$0.00
600000903	CORPORATE FLOW MONITORING ZONE STUDY	27-Mar-13	N/A	57,206.56	58,000.00	$0.00	($793.44)
600000904	MILL COVE BIOGAS FEASIBILITY STUDY	27-Mar-13	N/A	0.00	80,000.00	$0.00	($80,000.00)
600000921	MC WWTF EMERG OVERFLOW OUTFALL PIPE REP	24-Apr-14	6-Jun-14	379,657.25	254,500.00	$125,157.25	$0.00
600000960	HC SEWERSHEDS INFRASTRUCTURE PLAN	13-Jun-14	7/31/2014 and Apr 3/18	1,626,250.35	1,626,250.00	$0.35	$0.00
600001012	HWWTF - UV TRANS MONITORING & CONTROL	15-Oct-14	N/A	0.00	50,000.00	$0.00	($50,000.00)
600001013	DWWTF - UV TRANS MONITORING & CONTROL	15-Oct-14	N/A	0.00	50,000.00	$0.00	($50,000.00)
600001019	MC WWTF PS REHAB DESIGN	25-Sep-14	28-Oct-14	2,390,123.00	2,374,000.00	$16,123.00	$0.00
600001028	HALIFAX WWTF VFD SCRUBBER BYPASS	12-Feb-15	N/A	115,150.62	134,937.00	$0.00	($19,786.38)
600001059	CORPORATE FLOW MONITORING PROGRAM	19-Nov-15	12-Jan-16	1,172,131.98	1,173,000.00	$0.00	($868.02)
600001069	BISSETT PUMP STATION FORCEMAIN REPLACE	19-Feb-16	N/A	247,656.61	283,229.00	$0.00	($35,572.39)
600001111	GIS HARDWARE/SOFTWARE PROGRAM (WW)	13-Apr-16	12-Aug-16	61,321.38	62,000.00	$0.00	($678.62)
600001112	GIS APPLICATION SUPPORT PROGRAM (WW)	13-Apr-16	N/A	60,111.82	100,000.00	$0.00	($39,888.18)
600001118	ASSET MANAGEMENT PROGRAM PHASE 4 (WW)	22-Jan-16	N/A	40,032.65	40,000.00	$32.65	$0.00
600001121	WATER/WW MODELING TOOLS EVALUATION (WW)	26-Jan-16	N/A	17,017.84	16,000.00	$1,017.84	$0.00
600001122	ASSET MGMT SOFTWARE & TOOLS (WW)	26-Jan-16	N/A	15,191.72	20,000.00	$0.00	($4,808.28)
600001128	SCADA CONTROL SYSTEM ENHANCEMENTS (WW)	13-Jul-15	N/A	80,976.23	100,000.00	$0.00	($19,023.77)
600001172	GIS DATA PLAN WOODLAWN FOREST HILLS (WW)	23-Apr-15	30-Jul-15	124,269.26	100,000.00	$24,269.26	$0.00
600001200	CMMS PHASE 2B (WW)	24-Jul-15	15-Oct-15	1,635,058.96	1,800,400.00	$0.00	($165,341.04)
600001240	RAINNIE DRIVE SANITARY SEWER ADD COSTS	17-Nov-15	N/A	99,264.18	108,000.00	$0.00	($8,735.82)
600001262	MARKET STREET COMBINED SEWER REPLACEMENT	4-Dec-15	N/A	81,582.19	84,000.00	$0.00	($2,417.81)
600001306	MC BIOGAS RENEWABLE ENERGY DD & CA	3-Feb-16	N/A	0.00	101,000.00	$0.00	($101,000.00)
600001329	Hines Road Sewer - Odour Issue	28-Jul-16	N/A	189,873.71	190,000.00	$0.00	($126.29)
600001336	Roach's Pond Pumping Station Trash Rack	27-Apr-16	N/A	120,079.41	143,000.00	$0.00	($22,920.59)
600001338	EP PS - Efficiency/Pump Control	5-Jul-16	6-Sep-16	216,480.96	216,771.00	$0.00	($290.04)
600001341	RWWFP Projects MC2, MC3 - WW Storage	11-Oct-16	N/A	0.00	245,000.00	$0.00	($245,000.00)
600001342	Plant Optimization Program	12-Sep-16	N/A	104,939.21	175,000.00	$0.00	($70,060.79)
600001346	DWWTF - Influent Duty Pump Installation	24-May-16	N/A	77,635.51	160,000.00	$0.00	($82,364.49)

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600001351	MCWWTF - Wet Scrubber Media Replacement	27-Apr-16	N/A	16,840.28	20,000.00	$0.00	($3,159.72)
600001352	MCWWTF - Digester Roof Coating	27-Apr-16	N/A	55,588.86	135,000.00	$0.00	($79,411.14)
600001353	EPWWTF - Storage Shed	30-Aug-16	N/A	0.00	41,000.00	$0.00	($41,000.00)
600001354	EPWWTF - Secondary Launder Covers	27-Apr-16	N/A	0.00	49,000.00	$0.00	($49,000.00)
600001355	EPWWTF - Automation of RAS Gates	17-May-16	N/A	74,675.79	97,000.00	$0.00	($22,324.21)
600001361	Middle Musq WWTF Bank Stabilization	27-Feb-17	n/a	47,491.63	50,000.00	$0.00	($2,508.37)
600001371	Miscellaneous Equip Replace WW 16/17	28-Jan-16	13-Apr-16	42,760.41	70,000.00	$0.00	($27,239.59)
600001373	IS STRATEGY (WW)	3-Mar-16	N/A	114,997.60	114,000.00	$997.60	$0.00
600001391	STRATH LANE WW IP 16/17	20-Jan-16	24-Mar-16	121,057.98	226,000.00	$0.00	($104,942.02)
600001392	WESTWOOD DR WW IP 16/17	20-Jan-16	24-Mar-16	83,229.41	121,000.00	$0.00	($37,770.59)
600001393	SCARLET RD WW IP 16/17	20-Jan-16	24-Mar-16	69,982.52	206,000.00	$0.00	($136,017.48)
600001395	PARMBELLE LANE WW IP 16/17	20-Jan-16	24-Mar-16	34,601.72	79,000.00	$0.00	($44,398.28)
600001396	GEORGE DAUPHINEE DR WW IP 16/17	20-Jan-16	24-Mar-16	26,314.01	54,000.00	$0.00	($27,685.99)
600001410	NOVA SCOTIA POWER METER RELOCATIONS - WW	27-Jun-16	N/A	20,355.09	22,750.00	$0.00	($2,394.91)
600001416	HWWTF - EMERGENCY RAW WATER PUMP VFD REP	8-Sep-16	N/A	88,433.35	125,000.00	$0.00	($36,566.65)
600001417	EAST/CENTRAL WW INFRASTRUCTURE PLAN	1-Sep-16	N/A	124,354.40	125,000.00	$0.00	($645.60)
600001426	BEDFORD WEST CCC (WW) 16/17	12-Oct-16	N/A	0.00	11,200.00	$0.00	($11,200.00)
600001441	BEDFORD WEST CCC (16/17) INSFRASTRUCTURE	12-Jan-17	N/A	31,273.04	35,000.00	$0.00	($3,726.96)
600001464	MCWWTF ODOUR CONTROL UPGRADE	3-Feb-17	27-Mar-17	717,878.68	750,000.00	$0.00	($32,121.32)
600001483	LEIBLIN PS GRAVITY SEWER	8-Mar-17	30-Mar-17	3,455,987.10	3,460,000.00	$0.00	($4,012.90)
600001486	BALSAM/MONROE SUBDIVISION SEWER UPGRADE	9-May-17	N/A	0.00	165,000.00	$0.00	($165,000.00)
600001487	MANHOLE RENEWALS EAST 17/18	9-May-17	13-Apr-17	0.00	10,000.00	$0.00	($10,000.00)
600001488	MANHOLE RENEWALS WEST 17/18	9-May-17	13-Apr-17	17,079.99	9,500.00	$7,579.99	$0.00
600001489	MANHOLE RENEWALS CENTRAL 17/18	9-May-17	13-Apr-17	0.00	9,500.00	$0.00	($9,500.00)
600001490	LATERALS (non-tree roots) EAST 17/18	1-Mar-17	13-Apr-17	666,581.89	350,000.00	$316,581.89	$0.00
600001491	LATERALS (non-tree roots) WEST 17/18	1-Mar-17	13-Apr-17	626,597.98	450,000.00	$176,597.98	$0.00
600001492	LATERALS (non-tree roots) CENTRAL 17/18	1-Mar-17	13-Apr-17	188,779.55	500,000.00	$0.00	($311,220.45)
600001493	LATERALS (tree roots) EAST 17/18	1-Mar-17	13-Apr-17	189,210.43	200,000.00	$0.00	($10,789.57)
600001494	LATERALS (tree roots) WEST 17/18	1-Mar-17	13-Apr-17	402,419.88	200,000.00	$202,419.88	$0.00
600001495	LATERALS (tree roots) CENTRAL 17/18	1-Mar-17	13-Apr-17	4,388.44	200,000.00	$0.00	($195,611.56)
600001496	WET WEATHER MGMT PROGRAM 17/18	1-Mar-17	N/A	96,108.30	100,000.00	$0.00	($3,891.70)
600001498	CORPORATE FLOW MONITORING PROGRAM	13-Apr-17	29-May-17	962,931.55	962,750.00	$181.55	$0.00
600001501	BEDFORD WEST COLLECTION SYSTEM CCC	9-Jan-18	N/A	0.00	22,688.08	$0.00	($22,688.08)
600001503	EMERGENCY PS PUMP REPLACEMENTS	21-Apr-17	N/A	356,834.99	250,000.00	$106,834.99	$0.00
600001506	WW PS COMPONENT REPL PROGRAM-CENTRAL	8-Mar-17	N/A	259,811.92	200,000.00	$59,811.92	$0.00
600001518	ODOUR CONTROL STUDY-DWWTF	n/a	n/a	0.00	10,000.00	$0.00	($10,000.00)
600001520	WINDOW INSTALLATION FOR NATURAL LIGHT	25-Jul-17	N/A	19,780.76	20,000.00	$0.00	($219.24)
600001530	VENTILATION AIR HEAT RECOVERY	20-Jun-17	N/A	252,551.76	250,000.00	$2,551.76	$0.00
600001536	SIR PROGRAM FLOW METERS & REL EQUIP	31-Mar-17	13-Apr-17	20,019.34	25,000.00	$0.00	($4,980.66)
600001539	NEWCASTLE ST WW IP 17/18	6-Mar-17	21-Mar-17	17,511.06	34,000.00	$0.00	($16,488.94)
600001542	ST MARGARET'S BAY RD WW IP 17/18	6-Mar-17	21-Mar-17	63,101.30	29,000.00	$34,101.30	$0.00

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600001546	COLUMBUS ST WW IP 17/18	6-Mar-17	21-Mar-17	58,814.00	103,000.00	$0.00	($44,186.00)
600001547	STAIRS ST WW IP 17/18	6-Mar-17	21-Mar-17	0.00	12,000.00	$0.00	($12,000.00)
600001548	WOODCREST AVE WW IP 17/18	6-Mar-17	21-Mar-17	0.00	6,000.00	$0.00	($6,000.00)
600001555	WEST BEDFORD BLOCK 3-4 (WW)	6-Mar-17	N/A	2,112.46	7,970.50	$0.00	($5,858.04)
600001556	WEST BEDFORD PHASE 2-5A	6-Mar-17	N/A	5,324.21	10,172.26	$0.00	($4,848.05)
600001557	WEST BEDFORD PHASE 2-5B	6-Mar-17	N/A	2,064.94	6,736.89	$0.00	($4,671.95)
600001558	WEST BEDFORD PHASE 2-5C	6-Mar-17	N/A	685.99	3,636.14	$0.00	($2,950.15)
600001560	PURCHASE MODELLING SOFTWARE (WW)	27-Mar-17	N/A	79,098.73	80,000.00	$0.00	($901.27)
600001562	NETWORK INFRASTRUCTURE UPGRADE 17/18 WW	27-Mar-17	13-Apr-17	79,191.85	88,000.00	$0.00	($8,808.15)
600001564	FLEET UPGRADE 17/18 (WW)	27-Mar-17	13-Apr-17	1,036,306.54	1,033,000.00	$3,306.54	$0.00
600001568	POST CONST CONS-WW SYS-TRENCHLESS REHAB	10-May-17	N/A	6,247.84	6,500.00	$0.00	($252.16)
600001572	PRINCE ALBERT RD WW IP (2017)	21-Jul-17	21-Mar-17	20,895.14	21,000.00	$0.00	($104.86)
600001573	WEST BEDFORD PH 9A	31-Jul-17	n/a	1,992.09	4,796.13	$0.00	($2,804.04)
600001577	HHSP WWTF-CARBON REPL - DARTMOUTH	9-Aug-17	N/A	51,776.35	75,000.00	$0.00	($23,223.65)
600001578	HHSP WWTF-CARBON REPL - DARTMOUTH	9-Aug-17	N/A	0.00	55,000.00	$0.00	($55,000.00)
600001600	WIRELESS COMM INFRASTRUCTURE-HWWTF	22-Aug-17	n/a	54,657.95	60,000.00	$0.00	($5,342.05)
600001601	AT WWTF SLUDGE HOLDINGTANK COATING	12-Sep-17	n/a	257,659.12	230,000.00	$27,659.12	$0.00
600001621	AEROTECH BPF - GARAGE DOOR	5-Oct-17	n/a	15,350.22	16,000.00	$0.00	($649.78)
600001623	WW CONVEYANCE SYS UPGRADE (PRELIM INV)	23-Oct-17	n/a	0.00	15,000.00	$0.00	($15,000.00)
600001627	ATWWTF SEPTAGE RECEIVING SCREEN REPL	1-Nov-17	n/a	134,610.29	170,000.00	$0.00	($35,389.71)
600001640	OFFICE FURNITURE & BLDG IMPROV-PARK AVE	24-Nov-17	n/a	86,599.14	87,000.00	$0.00	($400.86)
600001643	CSO UPGRADE 2017	5-Dec-17	n/a	79,650.38	95,000.00	$0.00	($15,349.62)
600001645	DECOMMISSION BLUEWATER RD PS-DEEP WW SYS	9-Jan-18	n/a	137,829.59	138,000.00	$0.00	($170.41)
600001732	DESKTOP COMPUTER REPLACEMENTS (WW) 17/18	28-Mar-17	13-Apr-17	98,359.25	116,000.00	$0.00	($17,640.75)
600001734	ASSET MGMT PROGRAM DEVEL 1617 (WW)	1-Sep-16	N/A	4,289.77	12,000.00	$0.00	($7,710.23)
600001735	ASSESS AM SOFTWARE & TOOLS (WW)	1-Sep-16	N/A	11,333.16	12,000.00	$0.00	($666.84)
600001737	GIS DATA PROGRAM 16/17 (WW)	12-Apr-18	N/A	12,579.82	400,000.00	$0.00	($387,420.18)
600001739	GIS HOSTING IMPLEMENTATION (WW)	13-Apr-18	N/A	76,112.66	88,000.00	$0.00	($11,887.34)
	Wastewater Capital Difference			**$43,714,538.32**	**$45,707,698.07**	**$1,105,224.87**	**($3,098,384.62)**
						($1,993,159.75)	
700000182	SULLIVANS POND SEWER REPLACEMENT DESIGN	25-Jun-09	29-Jul-09	11,280,019.26	11,503,031.00	$0.00	($223,011.74)
700000690	GIS HARDWARE/SOFTWARE PROGRAM (SW)	13-Apr-16	12-Aug-16	15,330.35	15,500.00	$0.00	($169.65)
700000691	GIS APPLICATION SUPPORT PROGRAM (SW)	13-Apr-16	N/A	15,027.95	25,000.00	$0.00	($9,972.05)
700000697	ASSET MANAGEMENT PROGRAM PHASE 4 (SW)	22-Jan-16	N/A	10,008.17	10,000.00	$8.17	$0.00
700000700	WATER/WW MODELING TOLLS EVALUATION (SW)	26-Jan-16	N/A	4,239.63	4,000.00	$239.63	$0.00
700000701	ASSET MGMT SOFTWARE & TOOLS (SW)	26-Jan-16	N/A	3,859.56	5,000.00	$0.00	($1,140.44)
700000751	GIS DATA PLAN WOODLAWN FOREST HILLS (SW)	23-Apr-15	30-Jul-15	31,067.32	25,000.00	$6,067.32	$0.00
700000780	CMMS PHASE 2B (SW)	24-Jul-15	15-Oct-15	408,764.74	450,100.00	$0.00	($41,335.26)
700000886	IS STRATEGY (SW)	3-Mar-16	N/A	28,749.41	28,500.00	$249.41	$0.00
700000930	STRATH LANE SW IP 16/17	20-Jan-16	24-Mar-16	21,522.53	22,000.00	$0.00	($477.47)

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700001023	MANHOLE RENEWALS SW EAST 17/18	31-Mar-17	13-Apr-17	0.00	8,000.00	$0.00	($8,000.00)
700001024	MANHOLE RENEWALS SW WEST 17/18	31-Mar-17	13-Apr-17	0.00	8,000.00	$0.00	($8,000.00)
700001025	MANHOLE RENEWALS SW CENTRAL 17/18	31-Mar-17	13-Apr-17	0.00	8,000.00	$0.00	($8,000.00)
700001026	CATCHBASIN RENEWALS SW EAST 17/18	31-Mar-17	13-Apr-17	0.00	12,000.00	$0.00	($12,000.00)
700001027	CATCHBASIN RENEWALS SW WEST 17/18	31-Mar-17	13-Apr-17	50,229.25	12,000.00	$38,229.25	$0.00
700001028	CATCHBASIN RENEWALS SW CENTRAL 17/18	31-Mar-17	13-Apr-17	2,928.43	12,000.00	$0.00	($9,071.57)
700001029	LATERAL REPLACEMENTS SW EAST 17/18	31-Mar-17	13-Apr-17	552.99	5,000.00	$0.00	($4,447.01)
700001030	LATERAL REPLACEMENTS SW WEST 17/18	31-Mar-17	13-Apr-17	10,112.62	5,000.00	$5,112.62	$0.00
700001031	LATERAL REPLACEMENTS SW CENTRAL 17/18	31-Mar-17	13-Apr-17	1,000.63	5,000.00	$0.00	($3,999.37)
700001033	DRIVEWAY CULVERT REPLACEMENTS EAST 17/18	31-Mar-17	N/A	80,735.38	250,000.00	$0.00	($169,264.62)
700001034	DRIVEWAY CULVERT REPLACEMENTS WEST 17/18	31-Mar-17	N/A	19,440.49	250,000.00	$0.00	($230,559.51)
700001035	DRIVEWAY CULVERT REPLACEMENTS CNTL 17/18	31-Mar-17	N/A	952,052.15	425,000.00	$527,052.15	$0.00
700001038	CULVERT REPLACEMENT MONTAGUE RD	28-Feb-17	N/A	58,131.29	65,000.00	$0.00	($6,868.71)
700001039	CULVERT REPLACEMENT FLETCHER DR	28-Feb-17	27-Mar-17	160,154.86	134,000.00	$26,154.86	$0.00
700001040	CULVERT REPLACEMENT SOFTWIND LANE	28-Feb-17	N/A	68,048.83	70,000.00	$0.00	($1,951.17)
700001044	CULVERT REPLACEMENT BLUE HILL RD	28-Feb-17	N/A	94,243.47	95,000.00	$0.00	($756.53)
700001056	ST MARGARET'S BAY RD SW IP 17/18	6-Mar-17	21-Mar-17	630,355.52	604,000.00	$26,355.52	$0.00
700001059	COLUMBUS ST SW IP 17/18	6-Mar-17	21-Mar-17	95,852.68	88,000.00	$7,852.68	$0.00
700001060	STAIRS ST SW IP 17/18	6-Mar-17	21-Mar-17	3,748.48	4,000.00	$0.00	($251.52)
700001065	STONEY RIDGE LANE SW IP 17/18	6-Mar-17	21-Mar-17	71,458.16	73,000.00	$0.00	($1,541.84)
700001071	PURCHASE MODELLING SOFTWARE (SW)	27-Mar-17	N/A	20,195.41	20,000.00	$195.41	$0.00
700001073	NETWORK INFRASTRUCTURE UPGRADE 17/18 SW	27-Mar-17	13-Apr-17	19,797.94	22,000.00	$0.00	($2,202.06)
700001075	FLEET UPGRADE 17/18 (SW)	27-Mar-17	13-Apr-17	148,086.12	258,000.00	$0.00	($109,913.88)
700001080	FIRST LAKE DR CROSS CULVERT REPL PROJ	27-Mar-17	N/A	34,449.73	35,000.00	$0.00	($550.27)
700001086	RIVERVIEW DR SW IP (2017)	21-Jul-17	21-Mar-17	157,176.69	158,000.00	$0.00	($823.31)
700001164	DESKTOP COMPUTER REPLACEMENTS (SW) 17/18	28-Mar-17	13-Apr-17	24,589.82	29,000.00	$0.00	($4,410.18)
700001167	ASSET MGMT PROGRAM DEVEL 1617 (SW)	1-Sep-16	n/a	1,072.45	3,000.00	$0.00	($1,927.55)
700001168	ASSESS AM SOFTWARE & TOOLS (SW)	1-Sep-16	n/a	2,833.30	3,000.00	$0.00	($166.70)
700001169	GIS DATA PROGRAM 1617 (SW)	12-Apr-18	N/A	3,144.95	100,000.00	$0.00	($96,855.05)
700001170	GIS HOSTING IMPLEMENTATION (SW)	13-Apr-18	N/A	19,028.16	22,000.00	$0.00	($2,971.84)
Stormwater Capital Difference				**$14,548,008.72**	**$14,871,131.00**	**$637,517.02**	**($960,639.30)**
						($323,122.28)	
Net Difference				**$91,305,987.27**	**$95,867,502.07**	**$2,134,915.61**	**($6,696,430.41)**
						($4,561,514.80)	

Capital Project Spending Summary
April 1, 2017 - March 31, 2018

	Tab #	Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/17	Staged Approvals		Total Project Budget	Project Adjustments	Revised Total Project Budget	Over Budget	(Under Budget)
							Design	Tender / Construction					
*	1	300001609	CHEMICAL FEED PUMP REPLACEMENT	22-Mar-12	n/a	$374,321.54	$0	$0	$120,000.00	$204,000	$324,000	$50,322	$0
*	2	300002071	MACDONALD BRIDGE TRANSMISSION MAIN	26-Feb-15	13-Apr-15	$6,963,914.89	$0	$0	$7,700,000.00	($306,000)	$7,394,000	$0	($430,085)
*	3	300002192	AMI & MDMS REQUIREMENTS	7-May-15	n/a	$253,152.45	$0	$0	$249,800.00		$249,800	$3,352	$0
*	4	300002220	CMMS PH 2B (W)	24-Jul-15	15-Oct-15	$2,110,773.21	$0	$0	$2,485,500.00	($235,000)	$2,250,500	$0	($139,727)
*	5	300002264	GEORGE DAUPHINEE DR WM RENEWAL	20-Jan-16	24-Mar-16	$510,588.67	$0	$0	$680,000.00	($160,000)	$520,000	$0	($9,411)
*	6	300002304	SCARLET RD WM RENEWAL 16/17	20-Jan-16	24-Mar-16	$307,746.85	$0	$0	$364,000.00		$364,000	$0	($56,253)
*	7	300002305	LAYTON RD WM RENEWAL 16/17	20-Jan-16	24-Mar-16	$372,584.16	$0	$0	$300,000.00	$50,000	$350,000	$22,584	$0
*	8	300002317	BEDFORD CONNECTOR TRANSMISSION MAIN	22-Feb-16	31-Mar-17	$3,368,492.44	$0	$0	$4,659,717.00	($1,107,844)	$3,551,873	$0	($183,381)
*	9	300002349	LM WSP NEW DIESEL GENERATOR	18-Feb-16	6-Apr-16	$1,978,311.67	$0	$0	$1,900,000.00	$55,000	$1,955,000	$23,312	$0
*	10	300002361	BENNERY LAKE WSP PLATE SETTLERS	15-Apr-16	4-May-16	$434,762.28	$0	$0	$440,000.00		$440,000	$0	($5,238)
*	11	300002442	JD KLINE WSP BUIDLING - ROOF REPLACEMENT	15-Sep-16	n/a	$327,091.63	$0	$0	$145,000.00	$245,000	$390,000	$0	($62,908)
*	12	300002470	QUINPOOL RD/PENINSULA WM RENEWAL	3-Nov-16	10-Apr-17	$7,148,051.76	$0	$0	$7,505,000.00	$150,000	$7,655,000	$0	($506,948)
	13	300002481	BENNERY LAKE LAND PURCHASE	9-Nov-16	3-Nov-16	$312,951.00	$0	$0	$340,000.00		$340,000	$0	($27,049)
	14	300002520	ST MARGARET'S BAY RD IP 17/18	15-Feb-17	21-Mar-17	$548,589.55	$0	$0	$545,000.00		$545,000	$3,590	$0
	15	300002567	LEAD SERVICE LINE REPLACEMENTS 17/18	15-Feb-17	13-Apr-17	$474,521.70	$0	$0	$400,000.00		$400,000	$74,522	$0
	16	300002644	METERS 17/18	15-Feb-17	13-Apr-17	$475,167.89	$0	$0	$460,000.00		$460,000	$15,168	$0
	17	300002645	FLEET UPGRADE 17/18	15-Feb-17	13-Apr-17	$500,496.02	$0	$0	$505,000.00		$505,000	$0	($4,504)
	18	300002813	AMI METERS 17/18	6-Oct-16	6-Oct-16	$2,020,816.02	$0	$0	$2,020,000.00		$2,020,000	$816	$0
			Water Capital Difference			**$28,482,334**	**$0**	**$0**	**$30,819,017**	**($1,104,844)**	**$29,714,173**	**$193,665**	**($1,425,504)**
												($1,231,839)	
*	19	600000449	NORTHWEST ARM SEWER REHAB	30-Mar-17	7/29/2010 & 3/8/17 & 5/12/17 & 6/6/17	$23,177,600.35	$0	$0	$100,000.00	$23,080,557	$23,180,557	$0	($2,957)
*	20	600000921	MC WWTF EMERGENCY OVERFLOW OUTFALL PIPE REPL	24-Apr-14	6-Jun-14	$379,657.25	$0	$0	$365,000.00	($110,500)	$254,500	$125,157	$0
*	21	600000960	HC SEWERSHEDS INFRASTRUCTURE	13-Jun-14	7/31/14 & 4/3/18	$1,626,250.35	$0	$0	$499,000.00	$1,127,250	$1,626,250	$0	$0
*	22	600001019	MC WWTF PS REHAB DESIGN	25-Sep-14	28-Oct-14	$2,390,123.00	$0	$0	$1,584,000.00	$790,000	$2,374,000	$16,123	$0
*	23	600001059	CORPORATE FLOW MONITORING PROGRAM	19-Nov-15	12-Jan-16	$1,172,131.98	$0	$0	$1,370,000.00	($197,000)	$1,173,000	$0	($868)
*	24	600001200	CMMS PH 2B (WW)	24-Jul-15	15-Oct-15	$1,635,058.96	$0	$0	$1,988,400.00	($188,000)	$1,800,400	$0	($165,341)
*	25	600001464	MCWWTF ODOUR CONTROL UPGRADES	3-Feb-17	27-Mar-17	$717,878.68	$0	$0	$530,000.00	$220,000	$750,000	$0	($32,121)
*	26	600001483	LEIBLIN PS GRAVITY SEWER	8-Mar-17	30-Mar-17	$3,455,987.10	$0	$0	$3,495,000.00	($35,000)	$3,460,000	$0	($4,013)
*	27	600001490	LATERALS (NON TREE ROOOT) EAST	1-Mar-17	13-Apr-17	$666,581.89	$0	$0	$350,000.00		$350,000	$316,582	$0
*	28	600001491	LATERALS (NON TREE ROOOT) WEST	1-Mar-17	13-Apr-17	$626,597.98	$0	$0	$450,000.00		$450,000	$176,598	$0
	29	600001494	LATERALS (TREE ROOTS) WEST	1-Mar-17	13-Apr-17	$402,419.88	$0	$0	$200,000.00		$200,000	$202,420	$0
*	30	600001498	CORPORATE FLOW MONITORING PROGRAM (WW)	13-Apr-17	29-May-17	$962,931.55	$0	$0	$1,000,000.00	($37,250)	$962,750	$182	$0
*	31	600001503	EMERGENCY PS PUMP REPLACEMENTS	21-Apr-17	n/a	$356,834.99	$0	$0	$250,000.00		$250,000	$106,835	$0
	32	600001506	WW PS COMPONENT REPL PROGRAM	8-Mar-17	n/a	$259,811.92	$0	$0	$200,000.00		$200,000	$59,812	$0
*	33	600001530	VENTILATION AIR HEAT RECOVERY	20-Jun-17	n/a	$252,551.76	$0	$0	$250,000.00		$250,000	$2,552	$0
*	34	600001564	FLEET UPGRADE (WW) 17/18	27-Mar-17	13-Apr-17	$1,036,306.54	$0	$0	$1,120,000.00	($87,000)	$1,033,000	$3,307	$0
*	35	600001601	AT WWTF SLUDGE HOLDING TANK	12-Sep-17	n/a	$257,659.12	$0	$0	$230,000.00		$230,000	$27,659	$0

Capital Project Spending Summary
April 1, 2017 - March 31, 2018

	Tab #	Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/17	Staged Approvals		Total Project Budget	Project Adjustments	Revised Total Project Budget	Over Budget	(Under Budget)
							Design	Tender / Construction					
		Wastewater Capital Difference				**$39,376,383**	**$0**	**$0**	**$13,981,400**	**$24,563,057**	**$38,544,457**	**$1,037,226**	**($205,300)**
												$831,926	
*	36	700000182	Sullivan's Pond Sewer Replacement	25-Jun-06	7/29/09 & 5/17/2017	$11,280,019.26	$0	$0	$8,632,000.00	$2,871,031	$11,503,031	$0	($223,012)
*	37	700000780	CMMS Ph 2B (sw)	24-Jul-15	15-Oct-15	$408,764.74	$0	$0	$497,100.00	($47,000)	$450,100	$0	($41,335)
*	38	700001035	DRIVEWAY CULVERT REPLACEMENTS CTRL	31-Mar-17	13-Apr-17	$952,052.15	$0	$0	$200,000.00	$225,000	$425,000	$527,052	$0
*	39	700001056	ST MARGARET'S BAY RD SW IP 17/18	6-Mar-17	21-Mar-17	$630,355.52	$0	$0	$604,000.00		$604,000	$26,356	$0
		Stormwater Capital Difference				**$13,271,192**	**$0**	**$0**	**$9,933,100**	**$3,049,031**	**$12,982,131**	**$553,408**	**($264,347)**
												$289,061	
		Net Difference				**$81,129,909**	**$0**	**$0**	**$54,733,517**	**$26,507,244**	**$81,240,761**	**$1,784,299**	**($1,895,151)**
												($110,852)	

Halifax Water
Halifax Regional Water Commission

ITEM #5.1

HRWC Board

September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*

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

APPROVED: *Original Signed By:*

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

DATE: September 14, 2018

SUBJECT: **JD Kline - Raw Water Intake Traveling Screen Replacement Program**

ORIGIN

The Halifax Water 2018/2019 Capital Budget.

RECOMMENDATION

The HRWC Board approve the JD Kline - Raw Water Intake Traveling Screen Replacement Program project at an estimated cost of $1,230,000.

BACKGROUND

There are three vertical traveling screens at the Raw Water Pumping Station at the JD Kline Water Supply Plant. The screens are original to the plant and have been subject to corrosive waters for the past 41 years. The baskets for the traveling screens were refurbished in the mid-1990s due to corrosion issues. In 2017, an inspection of the units by Plant Operations found that the main carrier chain for Traveling Screen Unit #2 had rusted to failure and the individual screens had pulled apart. Screen #2 was subsequently taken out of service. . The other two traveling screen systems were functional but showing similar signs of corrosion.

It was recommended that all three traveling screens be replaced as part of a programmed replacement over a three year span. Funding for the three year program was identified in the 2018/19 Capital Budget and the 2018/19 to 2022/23 Five Year Capital Plan

A first step in the screen replacement program was retention of an engineering specialist to carry out a detailed assessment of the existing screen components and to help develop the plan for replacement. In May 2018, AECOM was retained by Halifax Water to assist with the assessment and replacement work.

On June 19, 2018, the main carrier chain on Screen #3 failed leaving the plant with only one operable travelling water screen. Without any redundancy, this condition put the plant at significant risk. Based on the urgency of the issue and the condition of the remaining operational screen, it was determined that all three Traveling Screen Units needed to be replaced as quickly as possible.

DISCUSSION

Working with AECOM for technical support and expertise, Halifax Water developed an accelerated plan to replace all three traveling screens as quickly as possible. The plan also included interim screening measures.

Evoqua is the Original Equipment Manufacturer (OEM) for the existing Travelling Water Screens at JD Kline. Evoqua are specialists in the field of Traveling Screens and are familiar with the systems at the JD Kline WSP. Eloqua's range of services include design, demolition and installation supervision, as well as commissioning and operator training necessary to replace the existing screens with the modern day replacement Traveling Water Screens. The replacement screen units require no wet-well modifications and are specifically designed for raw water intake applications.

Based on the emergency situation created by the failure of Screens #2 and #3, Evoqua was authorized to expedite and carry out the work to supply and install three Traveling Screen Units.

The lead time for the delivery of the first replacement unit is 12 weeks. For this reason, interim screening/protection measures were also needed to reduce operating risk during this time. A fish barrier net was installed between the inlet berms at the Low Lift Station. In addition to the fish barrier netting, the interim screening solution involved ordering and installing a set of removable stationary screens until all three traveling water screens are ready for installation. The manufacturing and delivery time for the stationary screens was approximately 3 weeks.

A local contractor was engaged to carry out the demolition/removal of the two failed screens, the installation of the removable stationary screens (as the interim solution), and the first of the three traveling screen units.

The installation of the removable stationary screens for Unit #3 was completed on August 29, 2018. Work on the installation of the first new Traveling Screen Unit is proceeding. The demolition of the third screen and installation of the remaining two new traveling screens will be under a separate contract that has yet to be awarded.

The upgrade of the electrical wiring and control systems for the new Traveling Screens would have required additional design work and would have extended the manufacturer's delivery time. Given the urgency of the situation, the decision was made to continue using the existing electrical and controls for the new traveling screens as a temporary measure. Once all three traveling screen units have been installed, the controls will be upgraded. The cost to upgrade the controls for the traveling screens will be proposed within the 2019/20 Capital Budget.

The estimated cost of the JD Kline - Raw Water Intake Traveling Screen Replacement Program project is $1,230,000.

A copy of the updated project cost estimate is attached.

BUDGET IMPLICATIONS

The 2018/2019 Capital Budget included funding in the amount of $905,000 for the first year of a three year program. As noted above, the emergency conditions dictated that the work to replace all three screens be carried out as quickly as possible.

Additional funding is available from the following projects:

- $ 95,000 - JD Kline WSP Replace Valve Actuator - Pumping Stat. (SAP #3-1929).
- $185,000 - JD Kline WSP Backwash Flow Control Improvements (SAP #3-2345).
- $145,000 - Robie 2 Emergency Pump – Controls Review & Optimization (SAP #3-2727)

Based on current operational priorities, these projects will not be proceeding. These projects will be re-evaluated as part of future budget considerations. Therefore, the approved funding is available for re-allocation.

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

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENT

- Project Cost Estimate

Report Prepared By:	*Original Signed By:* Tom Gorman, P.Eng., Manager, Water Infrastructure, 902-490-4176
Financial Reviewed By:	*Original Signed By:* Allan Campbell, B. Comm., RPO, CSC, Manager Finance 902-266-8566

ITEM #5.1

JD Kline **27-Sep-18**

Supply of Thru-Flow Travelling Water Screens **ATTACHMENT**

Category Description	Cost	
Screen #1	$	238,450.00
Screen #2	$	196,885.00
Screen #3	$	191,510.00
Sub-Total	$	626,845.00
Net HST (4.286%)	$	26,866.58
Total	**$**	**653,711.58**

Supply of Stationary Screens

Category Description	Cost	
Screen #1	$	87,960.00
Screen #2	$	48,930.00
Sub-Total	$	136,890.00
Net HST (4.286%)	$	5,867.11
Total	**$**	**142,757.11**

Consulting Services

Category Description	Cost	
Cost to Date	$	18,404.17
Net HST (4.286%)	$	788.80
Total	**$**	**19,192.97**

[redacted]

Cost of Construction Phase 1

Category Description	Cost	
Thru-flow Travelling Water Screen - Screen #1	$	238,450.00
Stationary Screen - Screen #1	$	87,960.00
Stationary Screen - Screen #2	$	48,930.00
Installation of Travelling Screen and Stationary Screen	$	71,757.75
Evoqua Representative (10 days total)	$	45,000.00
Sub-Total	$	492,097.75
Net HST (4.286%)	$	21,091.31
Sub-Total	$	513,189.06
Contingency (20% of Installation)	$	14,351.55
Sub-Total	$	527,540.61
Overhead (1%)	$	5,275.41
Halifax Water Staff	$	10,000.00
Total	**$**	**542,816.02**

Cost of Construction Phase 2

Category Description	Cost	
Thru-flow Travelling Water Screen - Screen #2	$	196,885.00
Thru-flow Travelling Water Screen - Screen #3	$	191,510.00
Installation	$	80,000.00
Evoqua Representative (10 days total)	$	45,000.00
Sub-Total	$	513,395.00
Net HST (4.286%)	$	22,004.11
Sub-Total	$	535,399.11
Contingency (20% of Installation)	$	16,000.00
Sub-Total	$	551,399.11
Overhead (1%)	$	5,513.99
Halifax Water Staff	$	10,000.00
Total	**$**	**566,913.10**

Total Project Cost

Category Description	Cost	
Consulting Services (to date)	$	19,192.97
ROV/ Diver Inspection	$	16,200.83
Fish Net (incl. tax) - Supply and Installation	$	25,875.00
Duty GST - Customs Brokerage (estimate)	$	57,300.00
Cost of Construction Phase 1	$	542,816.02
Cost of Construction Phase 2	$	566,913.10
Total	**$**	**1,228,297.92**
Rounded Total	**$**	**1,230,000.00**

2019/2020 Budget

Controls - Thru-Flow Traveling Screens

Category Description	Cost	
Controls supplied by Evoqua X 3 (Tax Included)	$	129,000.00
Installation (60% of Equipment cost)	$	77,400.00
Halifax Water Staff	$	10,000.00
Consulting Services	$	20,000.00
Contingency (10% of Installation Cost)	$	7,740.00
Total	$	244,140.00

Halifax Water
Halifax Regional Water Commission

ITEM #5.2

HRWC Board

September 27, 2018

TO: Mr. Ray Ritchie, Chair and Members of the Halifax Regional Commission Board

SUBMITTED BY: *Original Signed By:*

Jamie Hannam, MBA, P. Eng., Director Engineering & IS Department

APPROVED: *Original Signed By:*

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

DATE: September 21, 2018

SUBJECT: **Doyle Street Storm Sewer – Phase 2**

ORIGIN

2016/17 Capital Budget and 2018/19 Capital Budget

RECOMMENDATION

The HRWC Board approve funding in the amount of $311,000 to complete Phase 2 of the construction of the Doyle Street Storm Sewer project, for a total aggregated project cost of $636,000.

BACKGROUND

In 2016/17 HRM included the reconstruction of Doyle Street as part of their capital budget plan. Accordingly, Halifax Water included, in its 2016/17 capital budget, funds to complete any necessary asset renewal work within HRM's project limits on an integrated basis. The upgrading of the street from rural to an urban cross section complete with full curb and gutter was part of HRM's street reconstruction plans. HRM completed a stormwater analysis within their project limits to determine if the existing storm sewer system had capacity for the upgraded street cross section. HRM's engineering consultant identified a number of pipe sections as having insufficient flow capacity for the 1 in 5-year storm event that reflects Halifax Water's level of service. HRM's stormwater analysis was further supplemented with additional analysis as directed by Halifax Water.

The supplemental analysis included the entire length of the stormwater system from the upper reaches of the Doyle Street watershed to the ultimate discharge point into Bedford Basin. The outcome of the supplemental analysis was additional downstream pipe sections outside of the original HRM project limits were identified as having insufficient capacity for the 1:5 year event.

DISCUSSION

In 2016/17, funding in the amount of $75,000 was approved by the Halifax Water Board for stormwater integrated work as understood at that time.

Subsequent to 2016/17 a stormwater analysis was completed. As an outcome of the analysis, the project work scope increased to include upgrading numerous sections of pipe on Doyle Street and increasing flow capacity downstream in the area of the Bedford Highway.

On August 29, 2018, $250,000 was approved for Phase 1 of construction. Phase 1 includes the upgrade of approximately 126 metres of storm sewer within the Doyle Street right-of-way as identified in HRM's original analysis. Phase 2 of the project includes the upgrade of approximately 180 metres of the stormwater system downstream of the Doyle Street right-of-way, as identified in the supplemental analysis by Halifax Water. HRM tendered and closed the revised overall project on August 25, 2018. Based on the low tender bid, an additional $311,000 is required to complete Phase 2 of the construction.

The estimated total aggregated cost for the Doyle Street Storm Sewer project is $636,000.

BUDGET IMPLICATIONS

Additional funding in the amount of $311,000 is available from the 2018/19 Capital Budget under the Culvert Replacement Program, based on projected underspending. Under the program, two tender packages, involving 20 culverts, have been tendered and awarded as of August 1, 2018. The following table identifies the specific culvert replacement projects that are the source of the funding.

CWO	Project Name	Allocated Funding
700001200	Manchester Dr., near civic 2	$68,000
700001201	Windsor Dr., near civic 234	$63,000
700001152	CLARENCE AVE, AT HOWARD AVE	$13,000

700001153	CLARENCE AVE, NEAR MORRIS AVE	$5,000
700001047	Cobequid Rd., near civic 510	$4,597
700001137	LAKE MAJOR RD, near civic 190	$40,000
700001140	ORCHARD DR, near civic 32	$51,000
700001142	PENNY LANE AT WINDSOR DR	$20,000
700001149	RAMAR DR, near civic 6	$9,000
700001158	RITCEY CRES, near civic 1	$37,403
	Total	**$311,000**

The proposed expenditures all meet the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "Required to ensure infrastructure system integrity and safety".

ATTACHMENTS

Attachment 1 - Project Estimate Cost
Attachment 2 - Doyle Street Location Map
Attachment 3 - Cost Shared Agreement

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

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

Cost Breakdown (Phase 1)	
Construction Cost	$212,866
Construction Contingency (10%)	$21,287
Subtotal	$234,153
4.286% HST	$10,036
Subtotal	$244,188
Direct Halifax Water Cost (1%)	$2,442
Subtotal	$246,630
1% Interest/Overhead	$2,466
Total	**$249,097**

Cost Breakdown (Phase 2)	
Construction Cost	$282,842
Construction Contingency (10%)	$28,284
Subtotal	$311,126
4.286% HST	$13,335
Subtotal	$324,461
Direct Halifax Water Cost (1%)	$3,245
Subtotal	$327,706
1% Interest/Overhead	$3,277
Total	**$330,983**

Halifax Water

DOYLE STREET STORM SEWER

ITEM #5.2
HRWC Board
September 27, 2018
ATTACHMENT 2

N

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HALIFAX

PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

MEMORANDUM

DATE: August 27th, 2018

TO: Jamie Hannam, P. Eng.
Director, Engineering and Information Services, Halifax Water

CC: Peter Maynard, P. Eng. Project Engineer, Halifax Water

David Hubley, P. Eng., Manager, Project Planning and Design, HRM

FROM: Anne Sherwood, P. Eng., Senior Design Engineer, Project Planning and Design, HRM

SUBJECT: Cost Sharing Agreement: Tender No. 18-255, Street Recapitalization & Storm Sewer Upgrades– Doyle St.

Tender No. 18-255, Street Recapitalization & Storm Sewer Upgrades– Doyle St., was publicly advertised on August 8th, 2018 and closed on August 22nd, 2018. Prior to tender award, a cost sharing agreement must be finalized between Halifax Regional Municipality (HRM) and Halifax Water (HW).

Please find enclosed a summary and break down of items associated with water main renewal, lateral replacement and related reinstatement work.

In the most recent discussion on this project HW has agreed to pay 100% of the cost associated with the Storm Sewer Upgrades and related work. HW also agreed to pay 50% of the reinstatement cost associated with the work (based on unit prices), HRM is responsible for storm infrastructure relating to new curb work A 1.5% project overhead and contract administration cost based on the estimated HW cost share, is also included in the Halifax Water portion.

Halifax Water's storm water work on the above project is in two phases. Phase 1 – system upgrade work within Doyle Street (estimated cost $250,000) and Phase 2 – system upgrade work downstream with no impact on Doyle Street construction (estimated cost $305,782.76). Halifax Water has approved funding in place for Phase 1. Funding approval for Phase 2 is in progress pending Halifax Water Board and NSUARB approval. Halifax Water is in agreement to enter into the current HRM Contract under the above approved cost share arrangement. If the Phase 2 funding does not get approved, Halifax Water would instruct HRM to issue a contract Change Order or Change Directive to eliminate Phase 2 from the contract and any additional cost due to the impact of the quantity reduction, as per the contract language, would be the responsibility of HW.

Based on the unit prices of the lowest bidder meeting specifications (Dexter Construction Limited) and the above cost sharing, the estimated HW's costs for Tender No. 18-255 can be summarized as follows:

Storm Water Work	=	$ 511,415.00
HW share (50%) for reinstatement cost	=	$ 13,649.94
Subtotal for HW cost share	=	$ 525,064.64
Overhead and contract administration cost 1.5% of HW cost Share	=	$ 7,875.97
Subtotal for HW Cost	=	$ 532,841.85
Net HST (i.e., 4.286%)	=	$ 22,841.85
Total Estimated Cost for HW (including Net HST)	=	**$ 555,782.76**

Actual cost sharing for this project will be based on final quantities determined during construction. If these terms meet with your approval, please sign appropriate location below and return this document to my attention. If you have any questions or concerns, please call me at 490-6872.

Regards,

Anne Sherwood, P. Eng. Sr. Design Engineer HRM	Jamie Hannam, P. Eng. Director, Engineering and Information Services, HW	Peter Maynard, P.Eng. Project Engineer, HW	AUG. 31, 2018 Date

Halifax Water
Halifax Regional Water Commission

ITEM #5.3
HRWC Board

September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*

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

APPROVED: *Original Signed By:*

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

DATE: September 21, 2018

SUBJECT: **Leiblin Drive Booster Station – Replacement of Diesel Fire Pump**

ORIGIN

The 2018/2019 Capital Budget.

RECOMMENDATION

The Halifax Water Board approve funding for the Leiblin Drive Booster Station – Replacement of Diesel Fire Pump – Construction Phase in the amount of $450,000 for a total project cost of $510,000.

BACKGROUND

The Leiblin Drive Water Booster Station was originally constructed in 1965. The station supplies the Leiblin Boosted Zone in the Leiblin Park - Rockingstone area of Halifax. Components of the facility have been replaced over the years. Most recently, the domestic pumps, the associated pump control panel and the fuel tank were replaced in 2012. The existing diesel fire pump is nearing the end of its useful live. Repair and maintenance is becoming more problematic and the reliability of the fire system has been raised as a concern. The existing station does not have a backup diesel generator.

DISCUSSION

Based on comments from Operations and Technical Services, it was recommended that the old diesel fire pump and associated controls be replaced and that a new fire pump and a new diesel generator be installed in the Leiblin Booster Station. In March 2017, funding in the amount of $50,000 was approved for the detailed design phase of the project. CBCL was retained to carry out the design work associated with the project. CBCL has now completed their preliminary design work and their final design brief.

Based on CBCL's Class "C "construction cost estimate, the revised project cost estimate to complete the work is estimated to be $510,000 (see attached cost estimate).

BUDGET IMPLICATIONS

Funding in the amount of $395,000 was included in the 2018/19 Capital Budget for the Leiblin Drive Booster Station – Replacement of Diesel Fire Pump – Construction Phase.

The additional funding in the amount of $55,000 is available from (SAP# 3-2710) Percy/Andrew St Integrated Watermain Renewal project. HRM deferred this project to a future year. The funding is available for reallocation to the Leiblin Drive Booster Station – Replacement of Diesel Fire Pump project. The Percy/Andrew St project will be re-budgeted in a future year.

The proposed expenditure meets the "NO REGRETS – UNAVOIDABLE NEEDS" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "Required to ensure infrastructure system integrity and safety".

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENT

Halifax Water Project Cost Estimate

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

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

Leiblin Booster Station - Fire Pump Replacement

Description	Amount
Estimated Construction Cost (CBCL Preliminary Design Class C Estimate)	**$331,818.00**
Consulting Services (CBCL proposal) - Design	**$44,600.00**
Consulting Services (CBCL proposal) - Construction	**$13,400.00**
Construction Sub-Total	**$389,818.00**
20% Project Contingency	**$77,963.60**
Halifax Water Engineering/Inspection	**$10,000.00**
Halifax Water Operations/Technical Services	**$6,500.00**
Sub-total	**$484,281.60**
Net HST (4.286%)	**$20,756.31**
Overhead/Interest (1%)	**$4,842.82**
Total Construction Cost	**$509,880.73**

Current Funding Sources	
3-2646 Leiblin Fire Pump Replacement - Design	$50,000.00
Leiblin Fire Pump Replacement - Construction (2018-19 Capital Budget)	$395,000.00
Total	**$445,000.00**

Over/Under	**-$64,880.73**

Additional Funding Required = $65,000

Halifax Water
Halifax Regional Water Commission

ITEM #5.4

HRWC Board

September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*

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

APPROVED: *Original Signed By:*

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

DATE: September 21, 2018

SUBJECT: **Bissett Forcemain Replacement – AC Pipe Removal Funding Increase**

ORIGIN

Nova Scotia Environment Inspection Report (with order to comply) dated April 4, 2018.

RECOMMENDATION

The Halifax Water Board approve additional funding for the Bissett Road Forcemain Replacement – Asbestos Concrete (AC) Pipe Removal at an estimated cost of $64,000 for a total project cost of $304,000.

BACKGROUND

The Bissett Pumping Station conveyance system consists of two forcemains (a 400mm asbestos concrete and a 500mm ductile iron.

The 400mm asbestos concrete forcemain was constructed in the early 1970's. A section of the AC forcemain had experienced multiple breaks and it was replaced in 2016. At that time, the Halifax Water "best practice" approach to the disposal of AC pipe was to break the pipe and bury it within the common back fill of the trench for the new forcemain.

DISCUSSION

Subsequent to the forcemain replacement, Nova Scotia Environment (NSE) advised, via an Inspection Report, that they will not permit AC pipes to be disposed of in-situ and that the buried AC pipe material, as part of the 2016 project, must be removed and disposed of in accordance with NSE requirements. The scope of work includes the excavation, removal and disposal of the impacted common fill and AC pipe. In addition, the project includes importation and placement of backfill, removal and replacement of four 50mm conduits (relating to Halifax Water's forcemain flow meters), and reinstatement of all surfaces (i.e. private asphalt driveway, private fencing, grassed surfaces and any associated plantings). On April 9, 2018 the General Manager approved $150,000 to undertake this work. On July 20, 2018, the General Manager approved an additional $90,000 based on tender bids.

The project is near completion and actual amounts of material excavated and disposed are greater than anticipated. The additional volume equates to an additional $64,000 in project costs. The revised total project cost is $304,000.

BUDGET IMPLICATIONS

Funding in the amount of $1,455,000 was itemized in the 2018/19 Capital Budget for the Windmill Road PS Replacement project. The intent was to undertake this project in 2018: However, impacted land is owned by the Department of National Defense and that the associated land acquisition will delay the project to 2019. Thus, the funding in the amount of $64,000 can be reallocated from this project.

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

ALTERNATIVES

There are no recommended alternatives.

Report Prepared by: *Original Signed By:*
Renee Roberg, Project Engineer, 902-817-5980

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

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*

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

APPROVED: *Original Signed By:*

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

DATE: September 21, 2018

SUBJECT: **2018/19 Coburg Rd WM Renewal and Coburg Road WW Integrated Project – Additional Funding**

ORIGIN

2018/19 Capital Budget.

RECOMMENDATION

The Halifax Water Board approve:

1. Additional funding of $191,000 for the 2018/19 Coburg Rd Watermain Renewal for a revised project cost of $411,000, and

2. Additional funding of $331,000 for the 2018/19 Coburg Road Wastewater Integrated Project [IP] for a revised project cost of $516,000.

BACKGROUND & DISCUSSION

Halifax Water's proactive Water, Wastewater, and Stormwater Renewal Program is designed to replace or rehabilitate existing pipes that are in poor structural or hydraulic condition to reduce maintenance costs and improve system reliability. Full street structure replacements and resurfacing projects are probable candidates for the renewal of watermains and wastewater/stormwater collection pipes because of the efficiencies gained by integrated and coordinated construction activities.

Halifax Water works closely with Municipal staff from Project Planning & Design Services to plan and coordinate projects and look for joint opportunities for construction.

Halifax Water staff has most recently identified that there is deficiencies with the water, wastewater and stormwater infrastructure on Coburg Road (Halifax), between Oxford Street and the CN bridge. Halifax Water will manage the project and will integrate HRM sidewalk and curb work. It is planned to construct the HRM portion of the work in 2018 and the Halifax Water work in 2019.

The project was included in the 2018/19 Capital Budget. Specifically, within the 2018/19 Water Distribution Integrated Projects program, $220,000 was itemized for the replacement of 200 metres of 200 mm water main of Coburg Road. The 2018/19 Capital Budget also itemized $66,000 for the replacement of 25 metres of 600 mm sewer main and one manhole. In June 2018 staff completed the design of the sewer work and re-estimated the project cost to be $185,000. At that time additional funding in the amount of $119,000 ($185,000 less $66,000) was approved by the General Manager.

In September 2018 the tender for the work was issued and based on the low bid, the total estimated project costs of the 2018/19 Coburg Rd WM Renewal and the 2018/19 Coburg Road WW IP are $411,000 and $516,000, respectively [cost estimate attached].

BUDGET IMPLICATIONS

Coburg Rd 2018/19 Water IP

Funding in the amount of $191,000 is available within the 2018/19 Capital Budget under Integrated Wastewater Projects – Program which has a total budget of $3,696,350. Funding in the amount of $191,000 is available from the Percy Street W IP (18/19). The Percy Street Water IP (18/19) will not proceed in 2018 and thus the approved funding of $336,000 is not required.

Coburg Rd 2018/19 Wastewater IP

Funding in the amount of $1,455,000 was itemized in the 2018/19 Capital Budget for the Windmill Road PS Replacement project. The intent was to undertake this project in 2018, however, the required land is owned by the Department of National Defense and that the associated land acquisition will delay the project to 2019. Thus, funding in the amount of $331,000 can be reallocated from this project.

The proposed expenditure meets the "NO REGRETS – UNAVOIDABLE NEEDS" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "required to ensure infrastructure system integrity and safety". The project meets the criteria as the work is required in order to maintain an acceptable level of service.

ATTACHMENT:

Project Cost Estimate Sheet

Report Prepared By:	*Original Signed By:* David Ellis, Wastewater Infrastructure Engineering Manager, Engineering and IS, 902-490-6716
Financials Reviewed by:	*Original Signed By:* Allan Campbell, B. Comm. CPA, CMA, Manager, Finance, 902-266-8655

ITEM #5.5

HRWC Board
September 27, 2018
ATTACHMENT

2018/19

Coburg Road Watemain Renewal and Coburg Road Wastewater Integrated Project

	Water	WW	SW
Low Bid	$ 342,000	$ 333,000	$ 54,000
Access through HRM Park ($100K)	$ -	$ 100,000	$ -
Subtotal	$ 342,000	$ 433,000	$ 54,000
10% const. cont.	$ 34,200	$ 43,300	$ 5,400
Subtotal	$ 376,200	$ 476,300	$ 59,400
Net HST	$ 16,124	$ 20,414	$ 2,546
Staff Design and Field Insp	$ 14,000	$ 14,000	$ 5,000
Subtotal	$ 406,324	$ 510,714	$ 66,946
1%	$ 4,063	$ 5,107	$ 669
Total	$ 410,387	$ 515,821	$ 67,615
Approved Budget	$ 220,000	$ 185,000	$ 47,000
Shortfall	$ 190,387	$ 330,821	$ 20,615

Halifax Water
Halifax Regional Water Commission

ITEM # 6
HRWC Board
September 27, 2018

TO: Mr. Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

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

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

DATE: September 18, 2018

SUBJECT: **2018 Fall Debenture**

ORIGIN

Halifax Regional Water Commission (HRWC) participation in the Fall 2018 Municipal Finance Corporation (MFC) Debenture issue to secure the final debt financing for 2017/18 additions to utility plant in service.

RECOMMENDATION

It is recommended that the Halifax Water Board:

1. Approve the financing of $15,000,000 for a 10 year term with a twenty 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 2017/18 and 2018/19, and the approved rates.

DISCUSSION

Long term debt issued for water and wastewater projects is normally amortized for a period of 20 years based on the life of the asset being financed. Traditionally the market for 20

year financing in Canada has been significantly more expensive than 10 year financing so 20 year amortized debt is usually financed for 10 years and the balloon payment refinanced for the remaining 10 years.

The 2017/18 Capital and Operating Budgets were prepared based on a projection that $50,361,199 million of debt would be required to finance water, wastewater and stormwater additions to utility plant in service. New debt of $10.0 million was issued in the Fall Debenture of 2017. The full balance of the planned debt is not required as cash balances remain high so only $15.0 million will be issued at this time.

An additional $39,560,892 of debt is planned to fund the 2018/19 Capital Budget. This is expected to be issued in 2019. Although it is a departure from past practice, the acquisition of debt following completion of capital projects better aligns with the expectations of MFC.

The $15.0 million will be applied to Water, Wastewater, and Stormwater based on a pro-ration of actual expenditures, as follows:

	Debenture 2017	Debenture 2018	Total New Debt		Funded Additions 2017/18	
Water	$ 3,500,000	$ 6,000,000	$ 9,500,000	38.0%	$ 23,724,667	37.4%
Wastewater	$ 6,100,000	$ 6,400,000	$ 12,500,000	50.0%	$ 31,948,134	50.4%
Stormwater	$ 400,000	$ 2,600,000	$ 3,000,000	12.0%	$ 7,680,840	12.1%
Total	$ 10,000,000	$ 15,000,000	$ 25,000,000	100.0%	$ 63,353,642	100.0%

The final amount, interest rate and timing of the debt issuance 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 20.2% as of August 31, 2018. 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, 2018 (including the current portion) was $214.4 million, and debt is projected to be $208.3 million by March 31, 2019.

BUDGET IMPLICATIONS

The 2018/19 budget includes $31.4 million in debt servicing; a 7.1% increase from 2017/18. 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 2018 Fall Debenture and defer issuance of debt until spring 2019, however this introduces additional risk with respect to rising interest rates.

ATTACHMENTS

1. Borrowing Resolution
2. Cash Flow Model for 2018/19 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, (the Commission) 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 the Commission 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 the Commission wishes to borrow for the purpose of financing regular additions to Utility Plant in Service for a 20 year amortization period;

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

BE IT THEREFORE RESOLVED

THAT under the authority of Section 16 of the Act the Commission borrow from the Municipal Finance Corporation, for the purpose set forth above, a sum or sums not exceeding $15,000,000 for a 10 year term amortized over a 20 year amortization period at an all-inclusive rate not to exceed 5.5% percent;

THAT the sum be borrowed by the issue of debentures of the Commission to such an amount at the Commission 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;

THAT 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 Regional Water Commission held on September 27, 2018.

_____

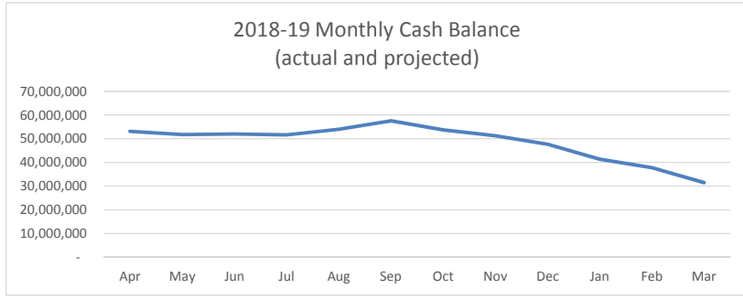
James G. Spurr
Corporate Secretary and Legal Counsel

Halifax Water
Cash Flow Model for 2018-19
Actuals to date and forecast

	Original Budget	Forecast	Adjustments for Cash Flow	Cash Flow	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Operating Revenue	135,217,315	135,217,315	-	135,217,315	9,887,947	10,443,958	10,557,252	12,839,779	11,642,357	19,850,873	10,858,994	10,358,994	10,358,994	10,058,994	10,058,994	11,976,500	138,893,637
Operating Expenses	(86,528,243)	(86,528,243)	2,940,000	(83,588,243)	(5,272,939)	(8,142,438)	(6,005,122)	(6,338,909)	(5,956,369)	(6,749,020)	(6,749,020)	(8,049,020)	(6,749,020)	(6,749,020)	(6,749,020)	(6,749,020)	(80,258,919)
Non Op Revenue	970,293	1,320,293	-	1,320,293	132,464	141,991	165,095	112,490	148,857	110,024	110,024	110,024	110,024	110,024	110,024	110,024	1,471,067
Non Op Expenses	(61,745,469)	(61,745,469)	26,555,396	(35,190,073)	(178,531)	(4,478,350)	(553,698)	(3,204,568)	3,562	(6,620,350)	(1,052,674)	(8,672,731)	(116,151)	(4,129,152)	-	(6,106,863)	(35,109,507)
Operations Total	(12,086,104)	(11,736,104)	29,495,396	17,759,292	4,568,940	(2,034,838)	4,163,527	3,408,791	5,838,407	6,591,527	3,167,324	(6,252,733)	3,603,848	(709,154)	3,419,998	(769,359)	24,996,279
Capital Expenditures (incl CCC projects)	(73,448,000)	(87,103,220)	-	(87,103,220)	(1,243,541)	(3,805,403)	(1,644,680)	(4,044,299)	(4,297,446)	(4,080,854)	(9,190,519)	(12,775,499)	(9,871,569)	(7,312,071)	(8,266,576)	(6,878,193)	(73,410,650)
New Long Term Debt	80,297,091	16,500,000	(123,750)	16,376,250	-	1,489,975	-	-	-	-	-	14,887,500	-	-	-	-	16,377,475
Other Incoming Cash (Build Can, RDC, etc)	8,171,552	14,709,959	-	14,709,959	271,579	2,764,435	1,259,914	2,404,377	655,438	871,184	2,110,174	1,591,183	3,033,683	1,531,683	1,531,683	1,891,991	19,917,324
Changes in working capital	-	(4,906,100)	-	(4,906,100)	(1,905,720)	237,300	(3,525,628)	(2,148,320)	181,256	130,084	140,084	40,084	(359,916)	154,369	(205,631)	(637,938)	(7,899,977)
Net Cash Flow	2,934,539	(72,535,466)	29,371,646	(43,163,820)	1,691,258	(1,348,531)	253,132	(379,450)	2,377,655	3,511,940	(3,772,938)	(2,509,464)	(3,593,954)	(6,335,172)	(3,520,525)	(6,393,499)	(20,019,549)
Opening Cash Balance				51,469,916	51,469,916	53,161,173	51,812,643	52,065,775	51,686,324	54,063,979	57,575,920	53,802,982	51,293,518	47,699,564	41,364,391	37,843,866	51,469,916
Ending Cash Balance				8,306,096	53,161,173	51,812,643	52,065,775	51,686,324	54,063,979	57,575,920	53,802,982	51,293,518	47,699,564	41,364,391	37,843,866	31,450,367	31,450,367
Actual reconciled month end cash balance					53,161,173	51,812,643	52,065,775	51,686,324	54,063,980	-	-	-	-	-	-	-	-
Variance					- 0	- 0	- 0	- 0	- 0	-	-	-	-	-	-	-	-

Notes

- Debt principle and interest payments are included in the Non Operating Expenses category
- Capital Expenditures includes the 2018-19 Capital Budget projects, projects carried over from 2017-18, and additional CCC project payments
- The 2018-19 Capital Budget anticipated new Long Term Debt of $39.6m. There was $39.2m in unissued debt from the 2017-18 Capital Budget
- The new Long Term Debt anticipated in this forecast is for just $16.5m including a $1.5m balloon renewal
- Other Incoming Cash includes the remaining $6.5 m in Build Canada and CWWF funding



Halifax Water
Halifax Regional Water Commission

ITEM # 7
HRWC Board
September 27, 2018

TO: Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Ray Ritcey, Chair, Executive Committee

DATE: September 21, 2018

SUBJECT: Board Meeting Format

ORIGIN

Board Resolution dated November 30, 2017

RECOMMENDATION

It is recommended that the Board begin the process to conduct open Board meetings for the public to observe its deliberations on the matters which come before it. It is further recommended that Halifax Water retain a portion of its Board meetings for in camera discussion of certain matters, including those listed in the "DISCUSSION" section of this Report.

BACKGROUND

At its meeting of November 30, 2017, the Board resolved that "the meetings of the Halifax Regional Water Commission Board of Commissioners, in recognition of the levels of transparency represented by its publicly available Agenda, Minutes, Information Reports and public proceedings before the Nova Scotia Utility and Review Board, continue to be held in a format which does not require the attendance of members of the public at such meetings".

Commissioners agreed in the discussion related to such Resolution that they would reconsider the matter in one year.

DISCUSSION

Meetings of Boards of Directors are typically not open to members of the public, to shareholders of a company or to the membership of organizations. The most common exception is meetings of the Boards of Trustees of not-for-profit organizations.

Boards which hold closed meetings generally do so because they are of the view that stakeholders and members of the public are sufficiently served by knowing the final outcome of the Board's decision, rather than the details of the discussion. Other reasons cited for not having open meetings are that Board members will be reluctant to engage in candid discussion of agenda items with others in the room and that stakeholders will use what they hear in Board meetings to lobby and influence Board members.

Despite the foregoing, Boards will always need to meet in camera for matters including the following:

Acquisition, sale and lease of property;
Litigation or pending litigation;
Human Resource issues;
Labour relations
Contract negotiations
Legal advice;
Matters subject to confidentiality arising out of a contract or dealings with another public body or a government

Security and venue concerns are also a factor in deciding whether to hold meetings which are open to the public. For Board meetings open to the general public, many organizations conduct a threat assessment before the venue for the meeting is chosen. This would include whether there are people or groups who have come to the organization's attention in the past in a negative way; for example, disgruntled customers, protestors, angry former employees or individuals with mental health issues with an abnormal focus or interest in Halifax Water.

Considerations for security of the meeting venue would include fire exits and fire control equipment, a plan for medical emergencies and a security briefing to meeting participants instructing them what to do in case of a meeting disruption.

All of the foregoing speaks to the transparency with which organizations conduct their business and the scrutiny to which they are subject in doing so. Our research indicates that Halifax Water is particularly unique in this regard, in terms of the level and extent to which it operates transparently and is scrutinized in numerous respects.

Halifax Water is authorized to conduct its business by the *Halifax Regional Water Commission Act* (the "Act"). Section 19 of the Act deems Halifax Water to be a public utility under the *Public Utilities Act* (the "PUA").

Section 19 of the PUA gives the Nova Scotia Utility and Review Board (the "NSUARB") general supervision of Halifax Water, with the power to require all information it considers necessary to fulfill its duties as Halifax Water's regulator. Specific provisions of the PUA which provide scrutiny of Halifax Water include; Section 35, which requires NSUARB approval of expenditures for capital improvements over $250,000; Section 74, which requires NSUARB approval of Halifax Water's borrowings from the Nova Scotia Municipal Finance Corporation; Section 83, which provides a vehicle for complaints to the NSUARB about Halifax Water, including a public hearing where the NSUARB considers a hearing necessary; Section 91, which provides for the appointment of a Consumer Advocate to represent the interests of residential customers in hearings before the NSUARB; and Section 92, which provides for the appointment of a Small Business Advocate to represent the interests of small business operators in hearings before the NSUARB.

The *Board Regulatory Rules* made under Section 12 of the *Utility and Review Board Act* provide for "any interested person" to intervene in proceedings before the NSUARB.

The *Halifax Regional Water Commission Regulations* (the "Regulations") provide in Section 78A thereof for the appointment of a Dispute Resolution Officer to investigate and recommend resolution of customer complaints that Halifax Water is not administering the Regulations in accordance with the Act and the Regulations.

Halifax Regional Municipality *Administrative Order 2018-001-ADM*, (the Administrative Order") passed by HRM Council on March 20, 2018, provides further scrutiny and transparency to Halifax Water's operations. The Administrative Order provides clarity to 2016 amendments to the Act providing that certain aspects of Halifax Water's business operations are "subject to the approval and directions of the Council". For example, Article 18 of the Administrative Order provides for approval limits for regulated business contracts outside the geographic boundaries of HRM for the General Manager ($250,000 or less), the Halifax Water Board ($499,999 or less) and HRM Council ($500,000 or greater). Similarly, Article 19 of the Administrative Order provides the same limits for unregulated business activities.

The Administrative Order also provides clarity on Halifax Water's obligations to have HRM Council review and approve its Long Term Strategic Plan, and Annual Business Plan, and review its Accountability Report and its Financial Statements.

Despite these considerations, there are times when Halifax Water's stakeholders may find the fact that others are deliberating on issues behind closed doors to be disconcerting. This may be especially true when stakeholders believe that such issues affect them directly or that the subject matter of a particular topic should be discussed and decided openly in a forum open to their attendance. It is anticipated that the utility could implement open Board meetings effective April 1, 2019.

BUDGET IMPLICATIONS

Halifax Water staff will need to develop policies for open meetings, including assessing the risks and costs of an open meeting format, and to determine an appropriate location, security requirements and capital or technology upgrades.

ALTERNATIVES

Maintain the current format of Board meetings which are not open to the public.

ATTACHMENT

Board Resolution

Report Prepared by:	*Original Signed By:* James G. Spurr, Corporate Legal Counsel and Secretary to the Board (902) 490-6101
Financial Reviewed by:	*Original Signed By:* Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services (902) 490-3685
Report Approved by:	*Original Signed By:* Carl D. Yates, M.A.Sc., P.Eng., General Manager (902) 490-4840

BOARD RESOLUTION

WHEREAS the Board resolved at its meeting of November 30, 2017 that it would continue to hold its meetings without requiring attendance of members of the public;

AND WHEREAS the Board has further reviewed the transparency of matters which come before the Board and its decisions in respect of such matters;

AND WHEREAS the Board has reviewed the impact on transparency of Halifax Regional Municipality *Administrative Order Number 2018-001-ADM*, dated March 20, 2018;

AND WHEREAS the Board has reviewed the impact on transparency of Halifax Water's 1st (2017) and 2nd (2018) Annual General Meetings

NOW THEREFORE BE IT RESOLVED THAT the Halifax Regional Water Commission Board of Commissioners begin the process to conduct Board meetings open to the public for the purpose of allowing members of the public to observe the Board's deliberations on the matters which come before it, subject to retaining the discretion to consider such matters in camera as it considers appropriate.

BE IT FURTHER RESOLVED THAT this Resolution will be implemented no later than April 1, 2019

Signed:

_____

Chair

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY:

Original Signed By:
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services

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

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

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

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

SUBJECT: **Financial and Operations Information Report**

INFORMATION REPORT

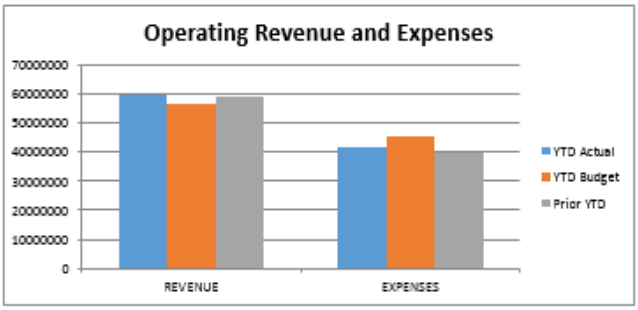
ORIGIN:

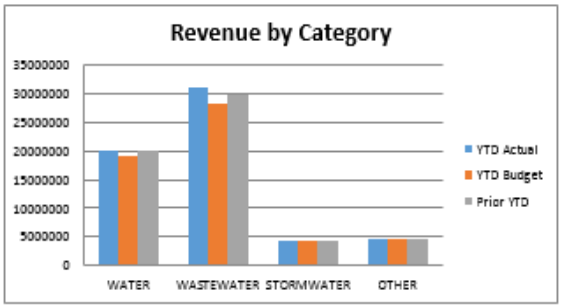
Regular update.

This report provides a high level overview of financial and operational performance for the utility. Financial results are presented first, followed by indicators and statistics for water and wastewater.

FINANCIAL

HALIFAX WATER
UNAUDITED FINANCIAL INFORMATION
APRIL 1/18 - AUGUST 31/19 (5 MONTHS)
'000



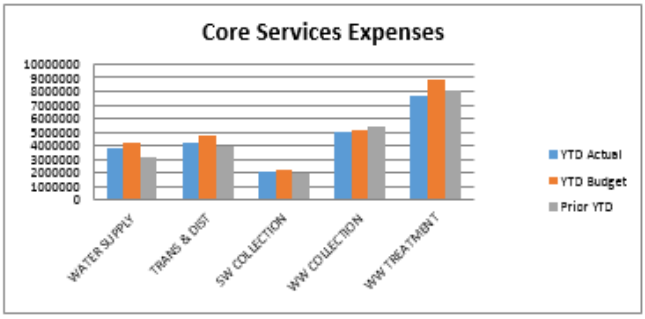


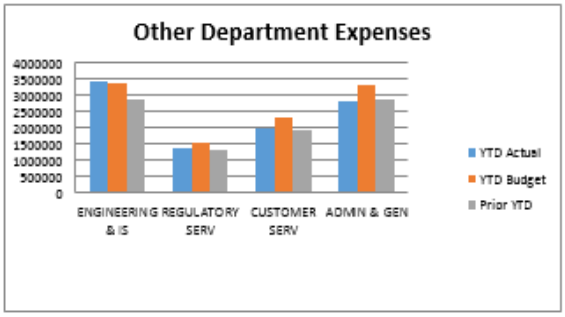
OPERATING REVENUE AND EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
REVENUE	$59,884	$56,326	$58,823	44.30%
EXPENSES	$41,527	$45,321	$39,888	38.16%
	$18,357	**$11,005**	**$18,935**	**69.50%**

REVENUE BY CATEGORY

	YTD Actual	YTD Budget	Prior YTD
WATER	$20,174	$19,230	$19,383
WASTEWATER	$31,033	$28,167	$29,826
STORMWATER	$4,212	$4,411	$4,287
OTHER	$4,466	$4,517	$4,728
	$59,884	**$56,326**	**$58,823**



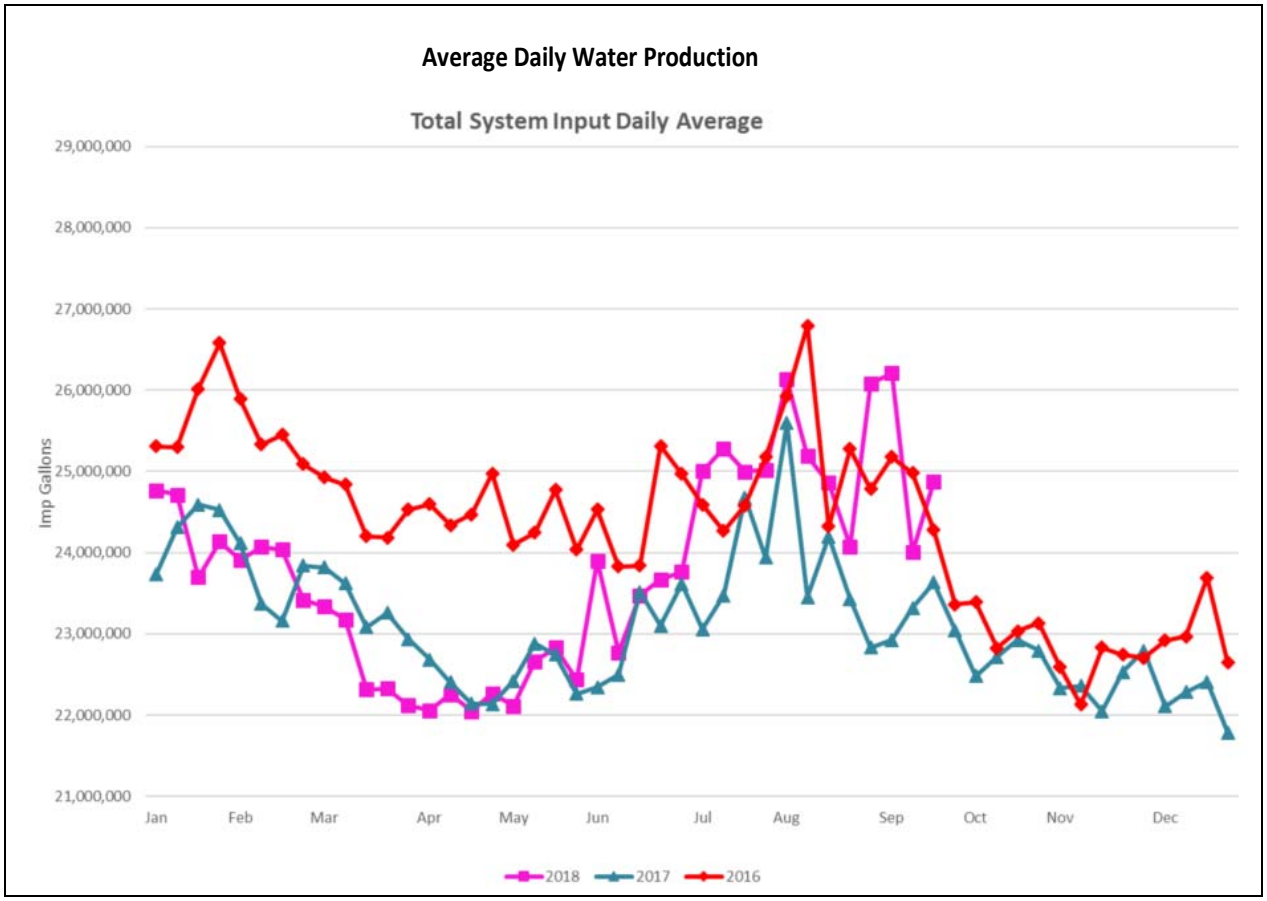


CORE SERVICES EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
WATER SUPPLY	$3,763	$4,143	$3,199	37.84%
TRANS & DIST	$4,145	$4,703	$3,976	36.72%
SW COLLECTION	$2,034	$2,198	$1,906	38.54%
WW COLLECTION	$5,026	$5,077	$5,351	41.25%
WW TREATMENT	$7,683	$8,855	$8,078	36.15%
	$22,650	**$24,977**	**$22,510**	**37.72%**

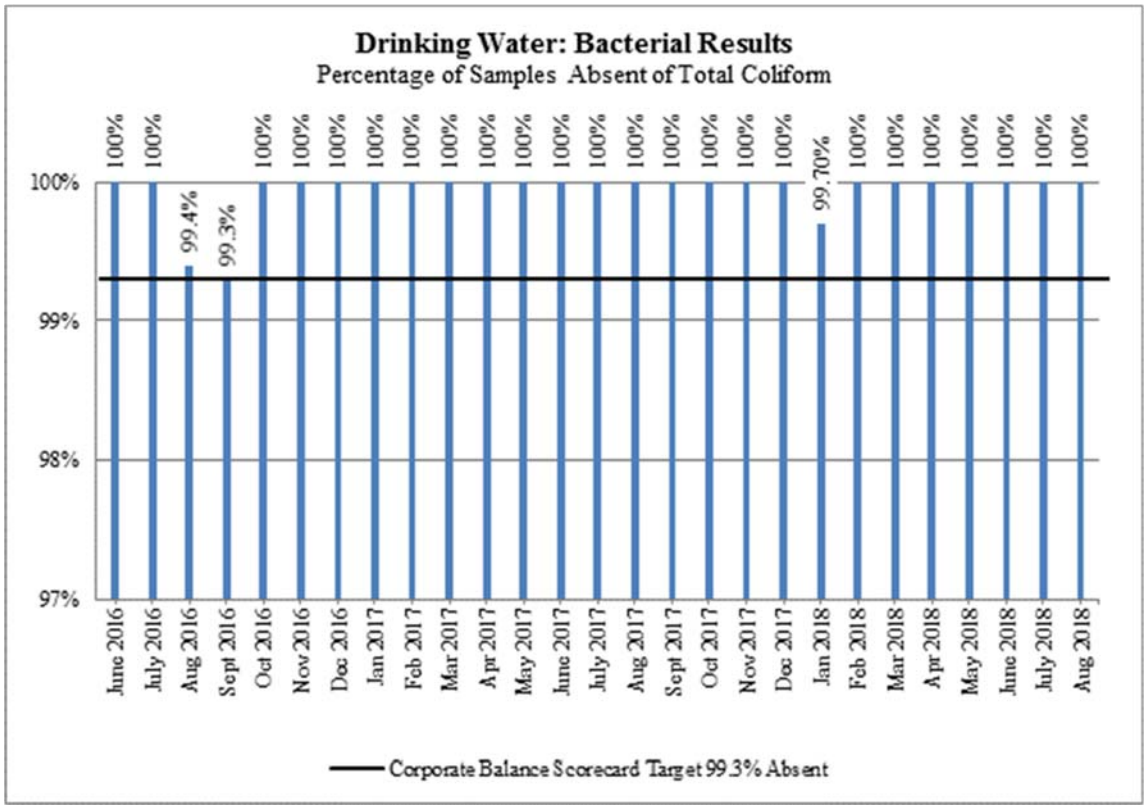
OTHER DEPARTMENT EXPENSES

	YTD Actual	YTD Budget	Prior YTD
ENGINEERING & IS	$3,440	$3,407	$2,863
REGULATORY SERV	$1,362	$1,568	$1,308
CUSTOMER SERV	$2,014	$2,301	$1,935
ADMIN & GEN	$2,823	$3,304	$2,861
	$9,639	**$10,580**	**$8,967**



Regional Water Main Break/Leak Data		
Year	**Total Breaks/Leaks**	**Current 12 Month Rolling Total *(up to Aug. 31, 2018)***
2017/18	206	190
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 30, 2018
Real Losses: 206 litres CBS Target: 180



Water Quality Master Plan Objectives 2018-2019 Q1				
Objective	Total Sites	% of Sites Achieving Target	All Sites: 90th Percentile < 15 µg/L	CBSC Awarded Points
Disinfection	64	94%	---	14
Total Trihalomethanes	25	88%	---	10
Haloacetic Acids	21	95%	---	16
Particle Removal	5	93%	---	13
Corrosion Control	69	---	5.59	20
TOTAL				73

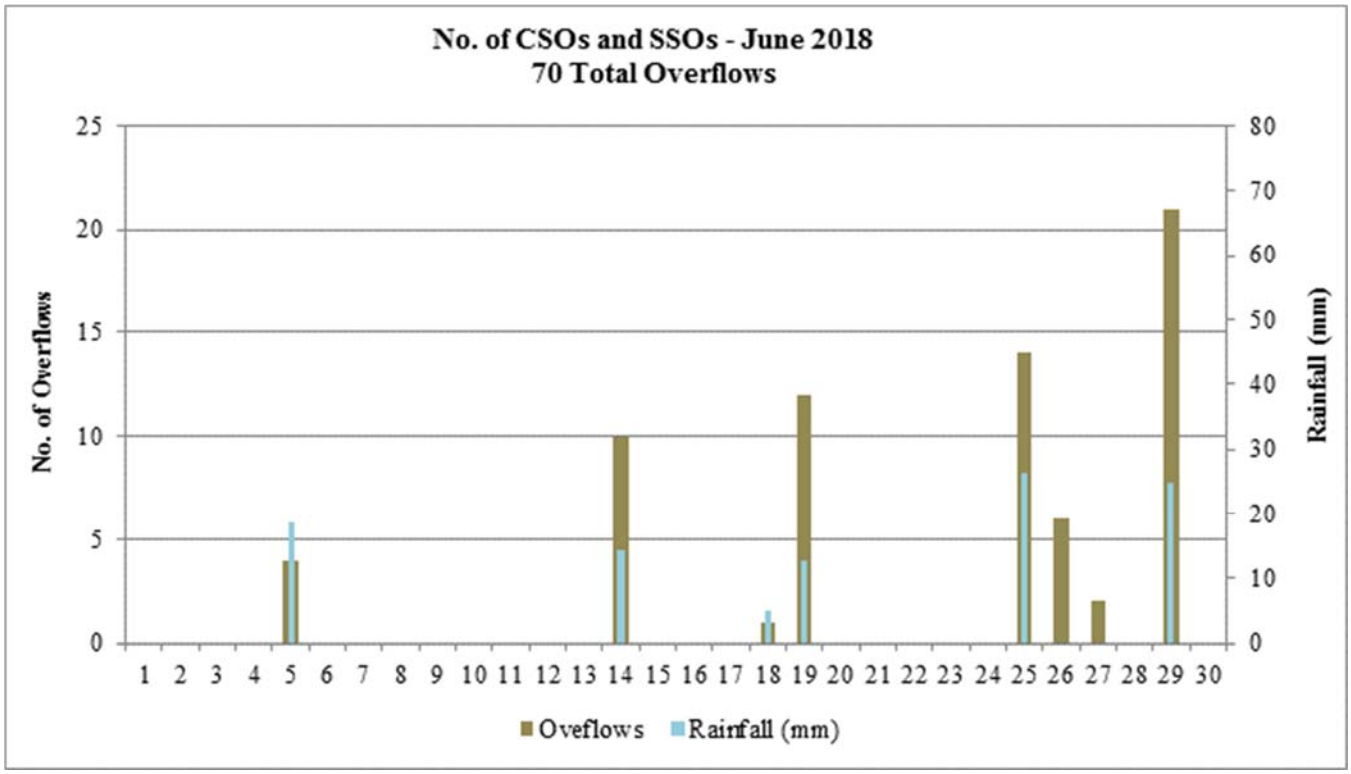
In this report each facility is assessed using monthly or quarterly averages, depending on the averaging period specified in its Approval to Operate.

Wastewater Treatment Facility Compliance Summary
Rolling Averages - June, July and August 2018

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	46	40	23	5000	7555	6-9	6.7	-		-		-		-		Not acutely lethal	Continued
Dartmouth	50	56	40	29	5000	11528	6-9	6.9	-		-		-		-		Lethal	Declined
Herring Cove	50	31	40	14	5000	16	6-9	6.8	-		-		-				Not acutely lethal	Continued
Eastern Passage	25	8	25	8	200	70	6-9	6.7	-		-		-		-		Not acutely lethal	Continued
Mill Cove	25	13	25	17	200	12	6-9	6.4	-		-		-		-		Not acutely lethal	Continued
Springfield	20	4	20	4	200	10	6-9	7.0	-		-		-		-		-	Continued
Frame	20	4	20	1	200	10	6-9	7.0	-		-		-		-		-	Continued
Middle Musq.	20	4	20	6	200	10	6-9	7.5	-		-		-		-		-	Continued
Uplands	20	10	20	13	200	63	6-9	6.7	-		-		-		-		-	Continued
Aerotech	5	5	5	1	200	10	6-9	7.2	5.7 W 1.2 S	0.1	0.5	0.1	-		6.5	7.9	Not acutely lethal	Improved
North Preston	10	5	10	3	200	10	6-9	6.7	3	0.1	1.5	0.3	-		-		-	Improved
Lockview	20	5	20	3	200	53	6.5-9	7.0	8.0 S	2.1	1.2 S	0.4	-		-		-	Continued
Steeves (Wellington)	20	5	20	2	200	10	6.5-9	7.3	14.4 S	0.1	1.0 S	0.1	-		-		-	Continued
BLT	15	4	20	14	200	10	6-9	7.2	5 W 3 S	1	3 W 1 S	1	0.02 *	0.10	-		Not acutely lethal	Continued
Avg. of all Facilities	14		10		1383		6.9		0.6		0.4		0.18		7.9			

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
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

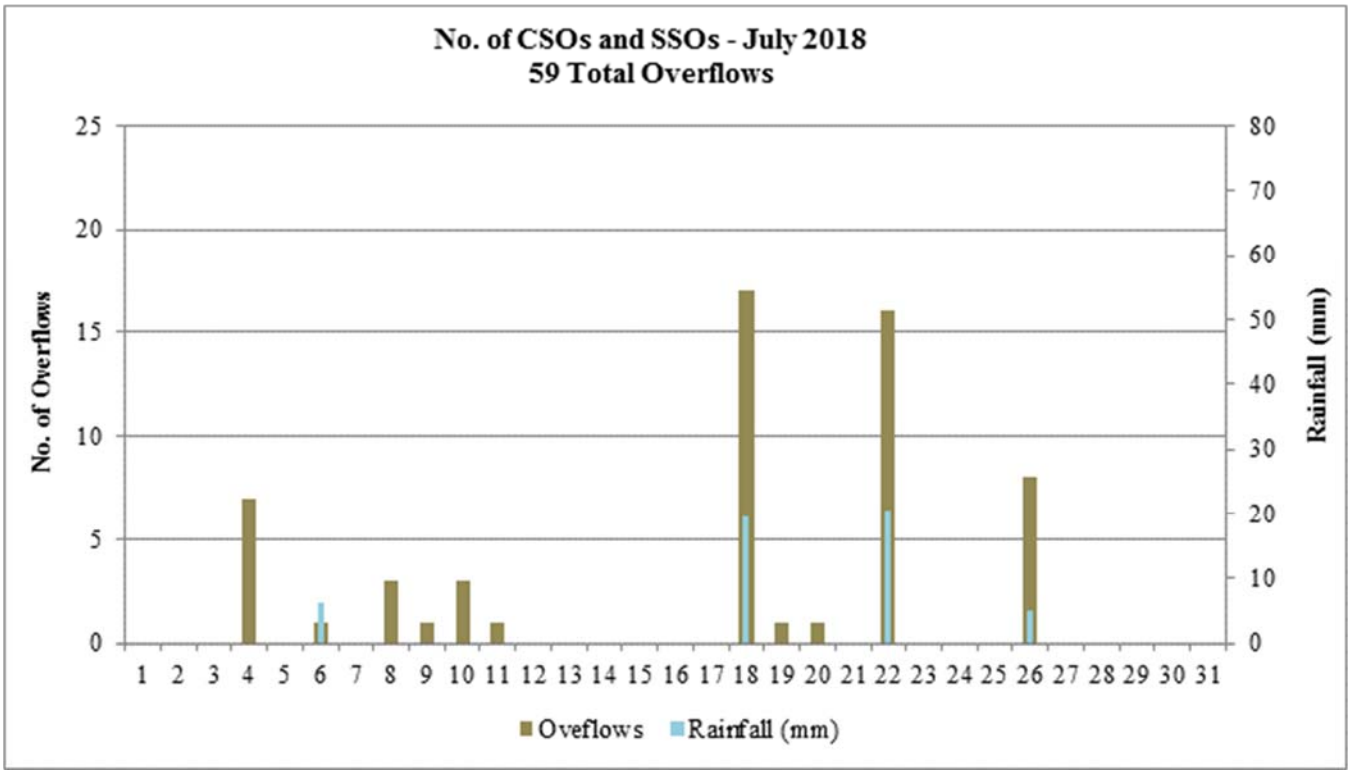


NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

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

    1. June 26: The CSOs at the Lyle St CSO, Park Ave PS & CSO, King St PS & CSO, Old Ferry Rd PS & CSO and Melva St PS & CSO were due to a planned maintenance performed at the Dartmouth WWTF. NSE was made aware prior to the performance of the maintenance.

    2. June 27: The CSOs at the Duffus St PS and King St PS & CSO both occurred as a result of planned maintenances that required confined space entry into the wet wells; influent flows were reduced at the Halifax WWTF and King St pumping station during the times of maintenance.



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

1. July 4: The CSOs at the Lyle St CSO, Melva St PS & CSO and Ferguson Rd CSO occurred due to technical issues with the repeater on the bridge. (Note: a capital project has been initiated to relocate the repeater from the bridge to the HWWTF, providing staff more direct control over its functionality). NSE was made aware via email. The CSO at the Fairview CSO was due to a loss of communication to the pumping station for a small amount of time.

2. July 8: The CSOs at the Wallace St CSO and the Upper Water St CSO were due to blockages caused by debris.

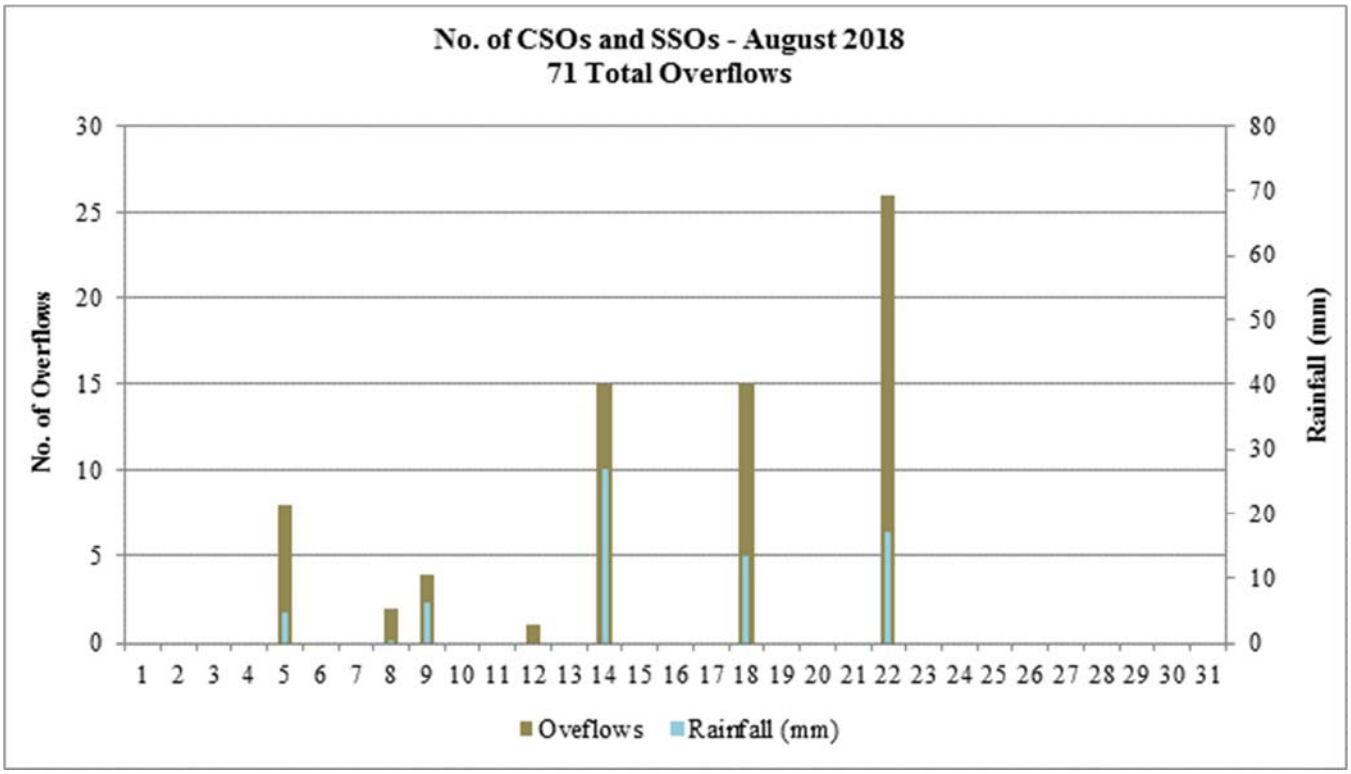
3. July 9: The CSO at the Upper Water CSO was due to a partial blockage caused by debris.

4. July 10: The CSO at the Upper Water CSO was due to a partial blockage caused by debris. The SSO at the Fish Hatchery PS was due to a planned maintenance performed at the Mill Cove WWTF. NSE was notified prior to the performance of the maintenance.

5. July 11: The CSO at the Upper Water CSO was due to a partial blockage caused by debris.

6. July 19: The CSO at the Grove St CSO occurred due to a power interruption that caused technical issues.

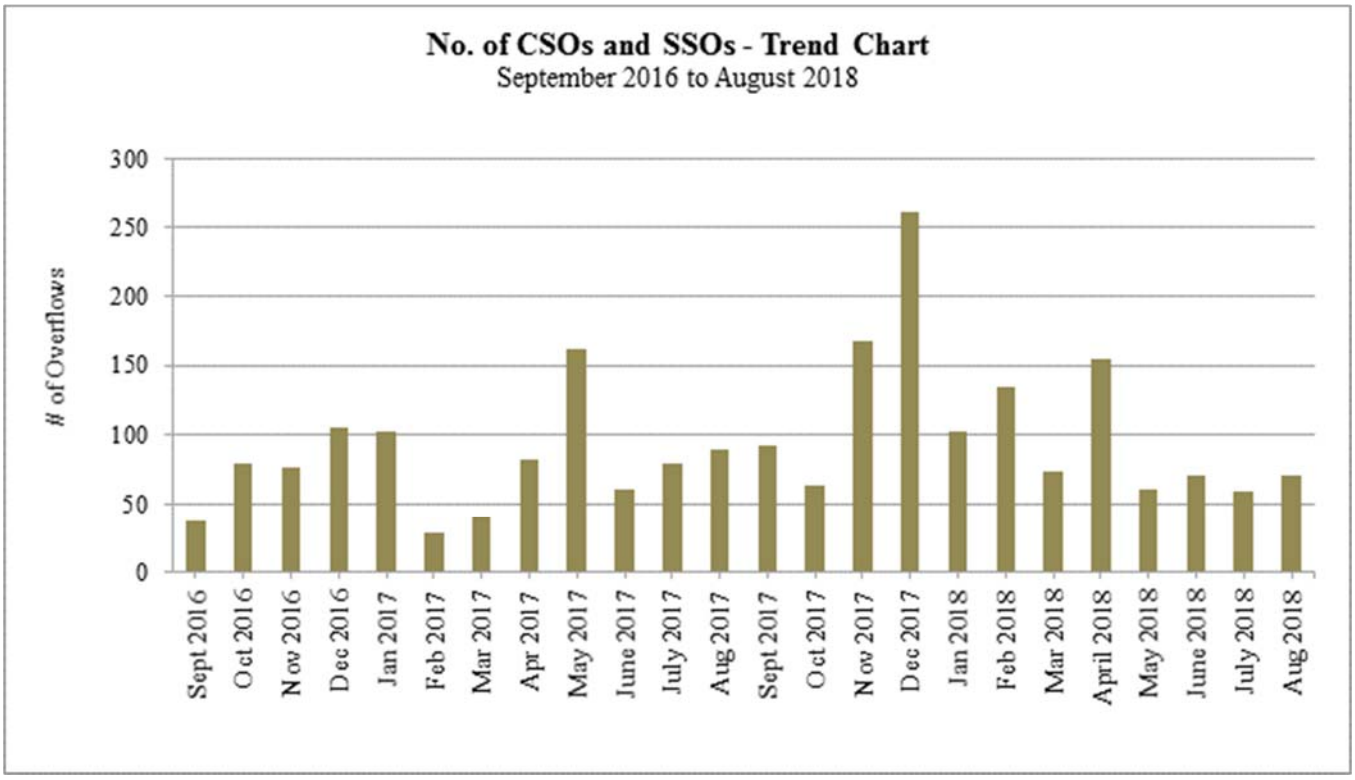
7. July 20: The CSO at the Old Ferry Rd PS & CSO was due to operational maintenance being performed.

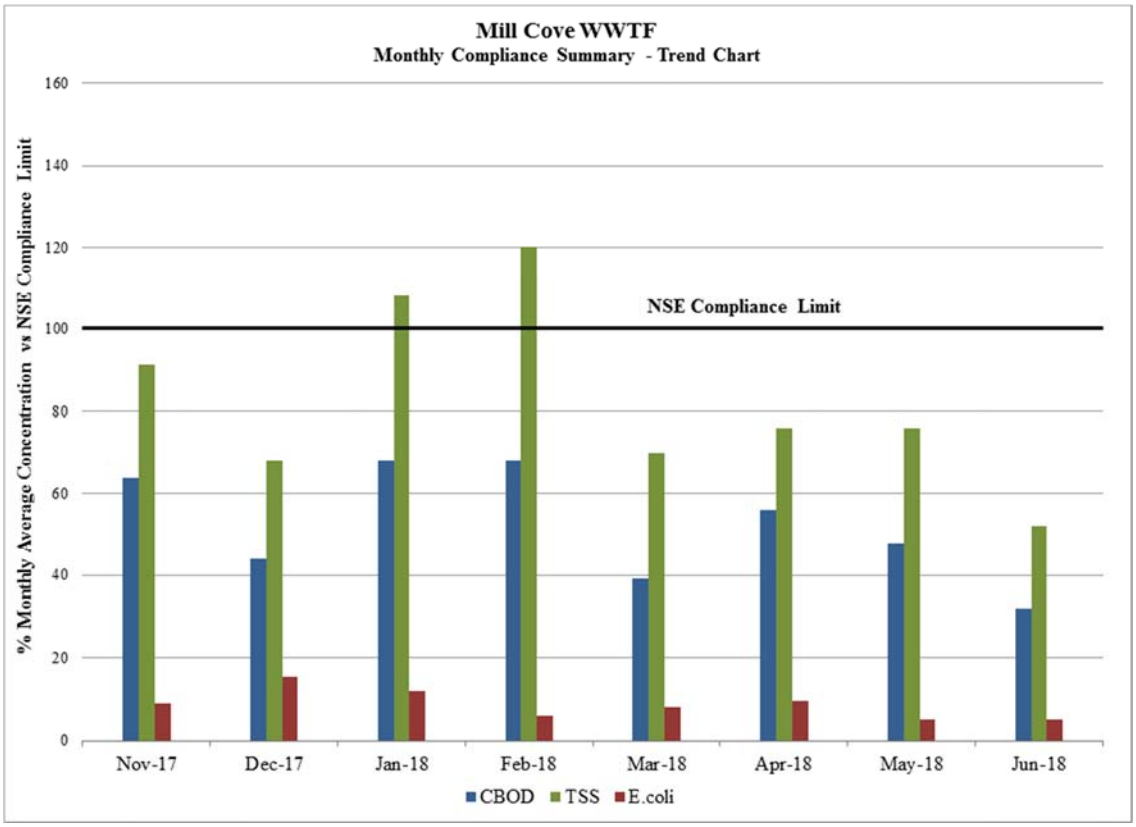


NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

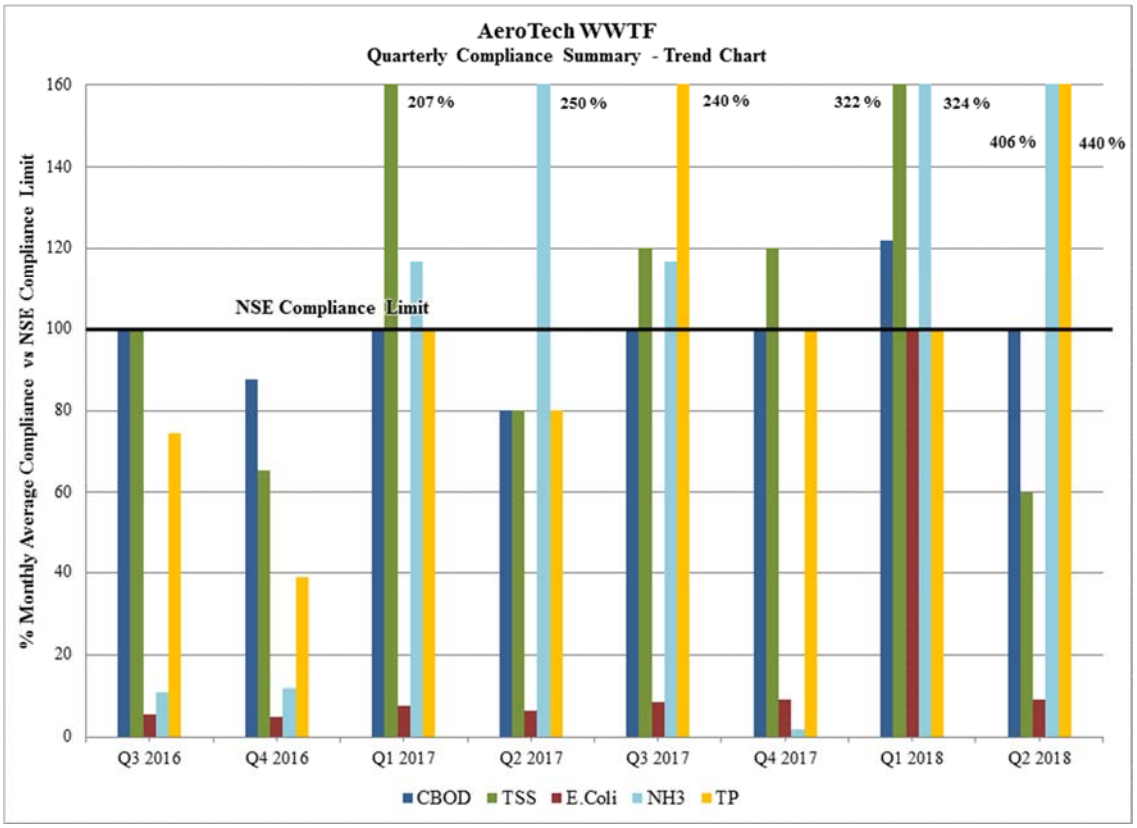
- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were three overflows on days when there was no recorded rainfall, as follows:

    1. August 8: The CSOs at the Grove St CSO and Wallace St CSO were both due to a planned maintenance at the Jamieson St CSO.
    2. August 12: The CSO at the Lyle St CSO was due to a blockage caused by debris.





Lower numbers represent better performance.



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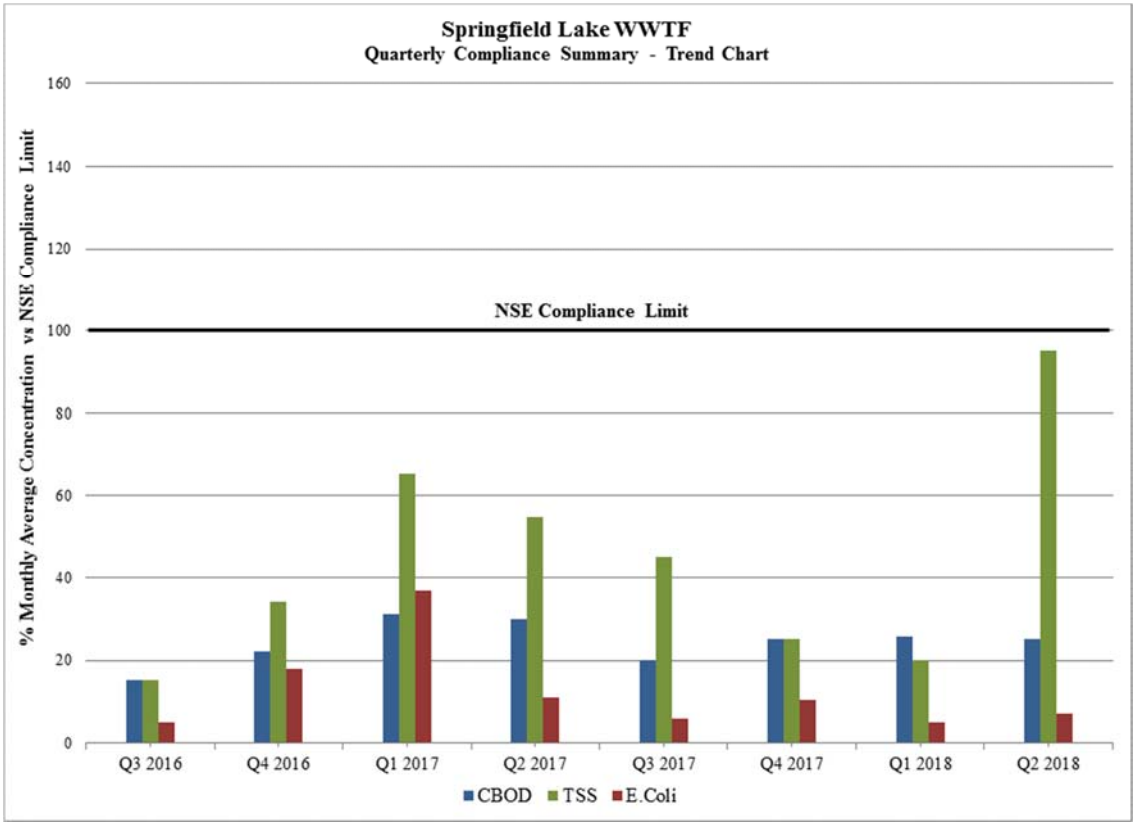

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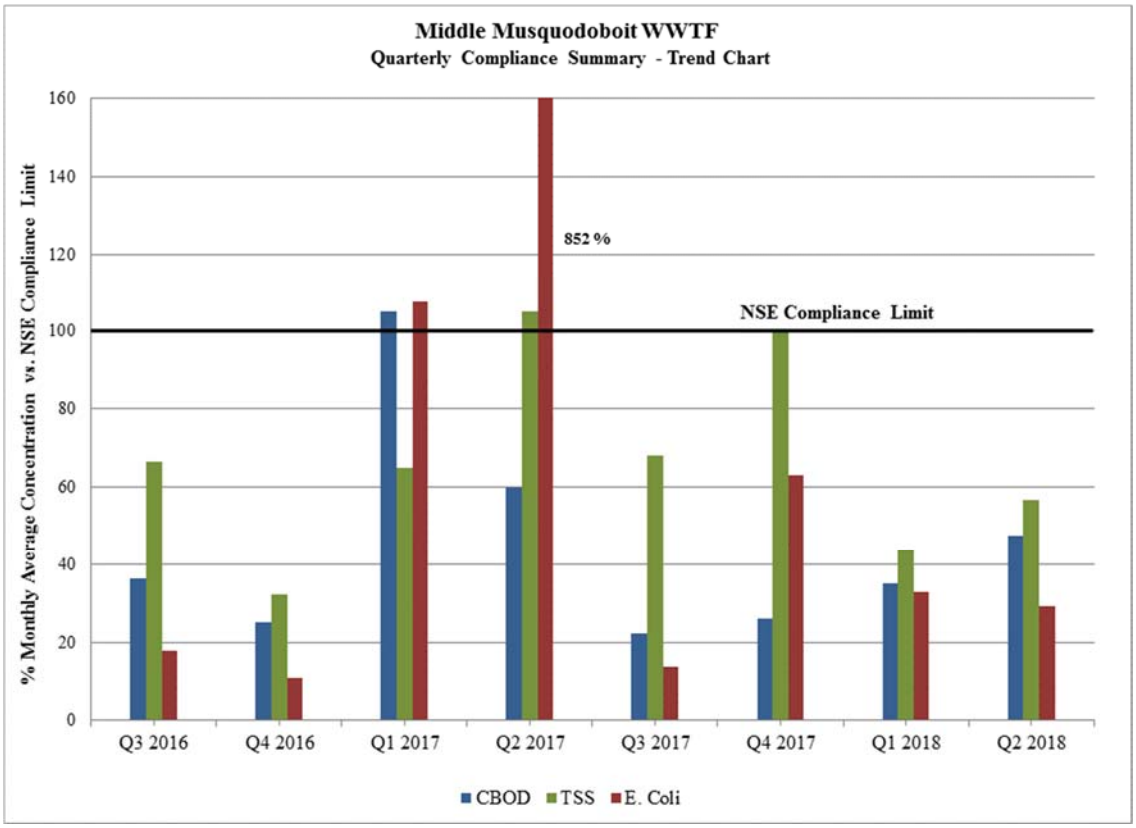

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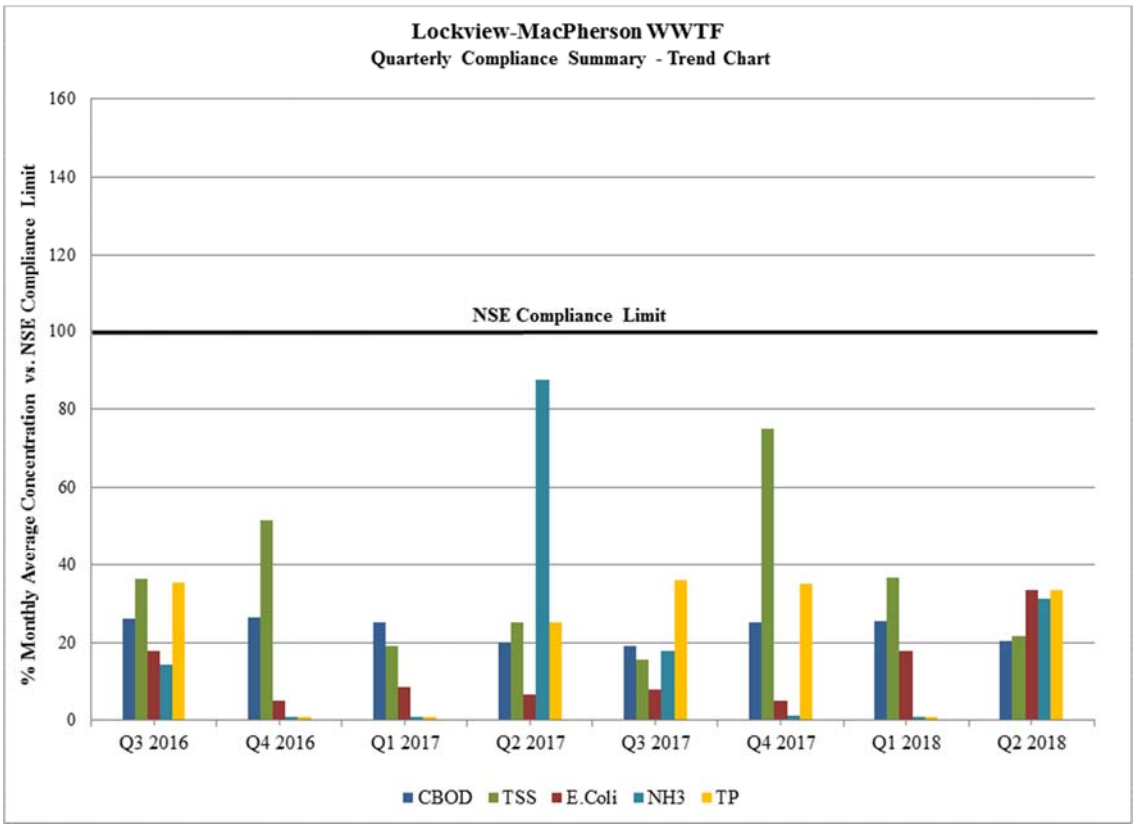

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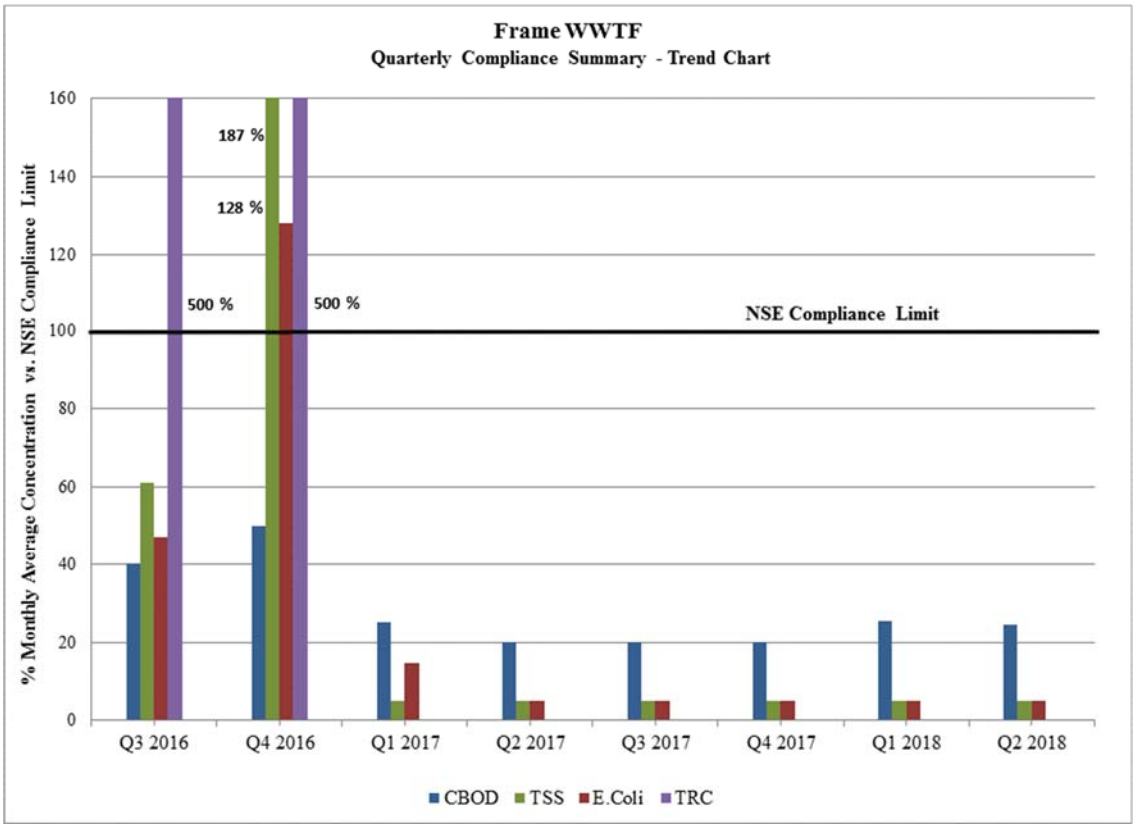

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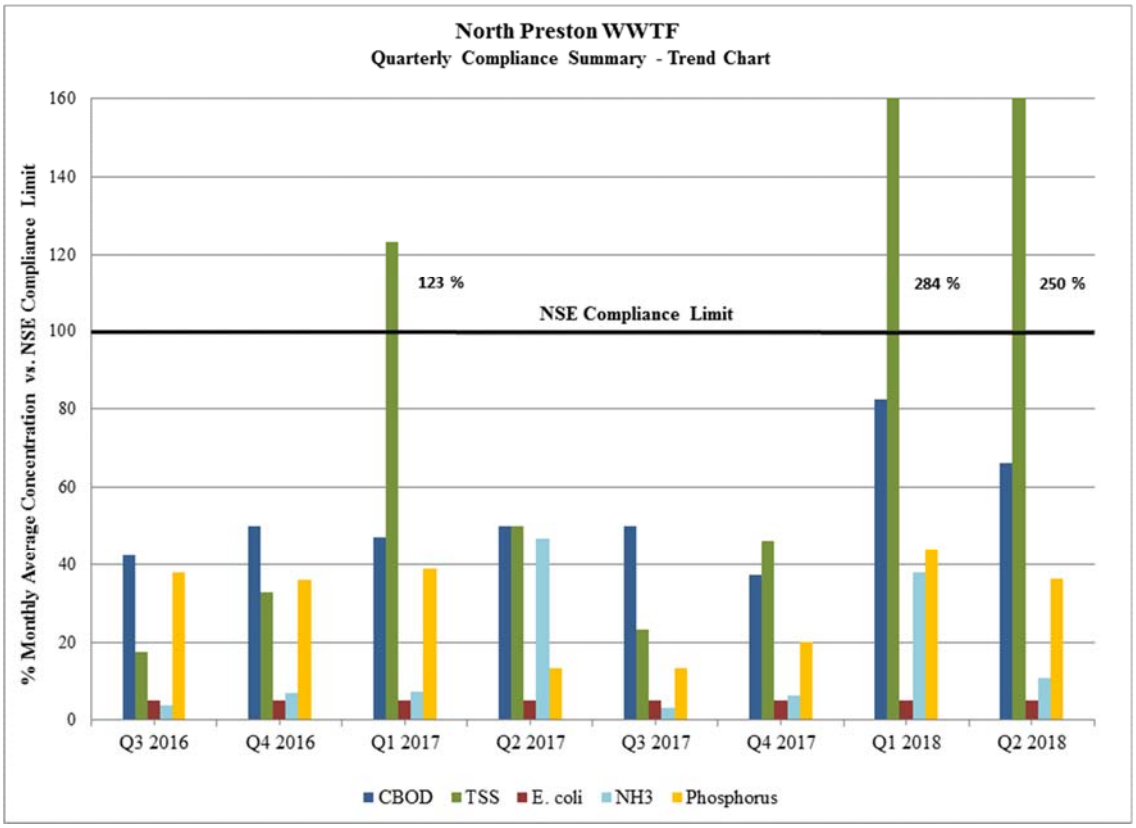

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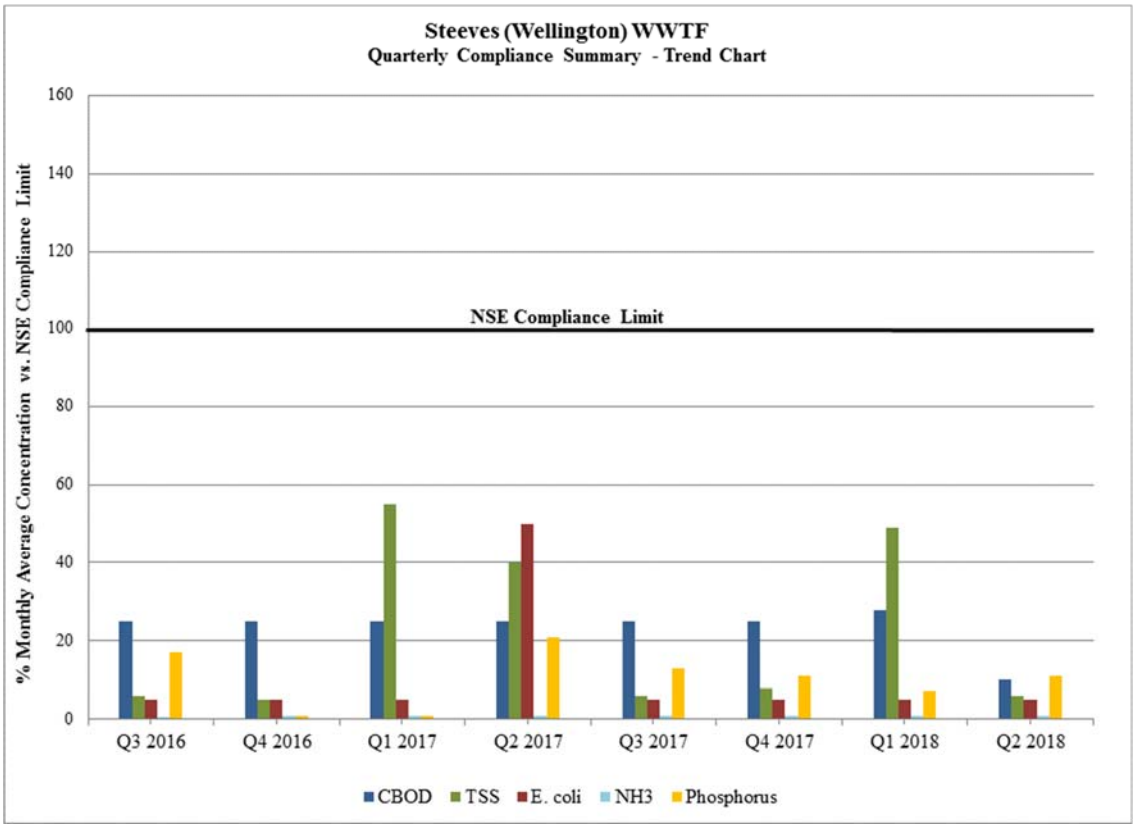

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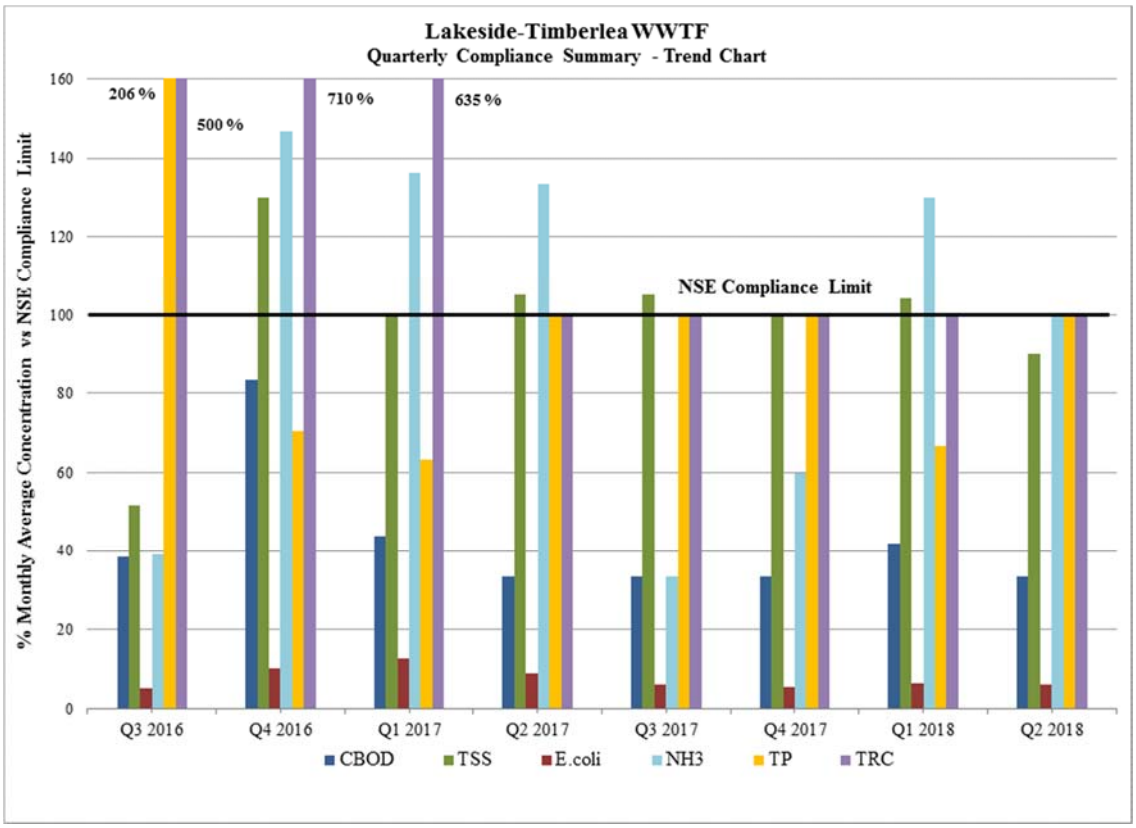

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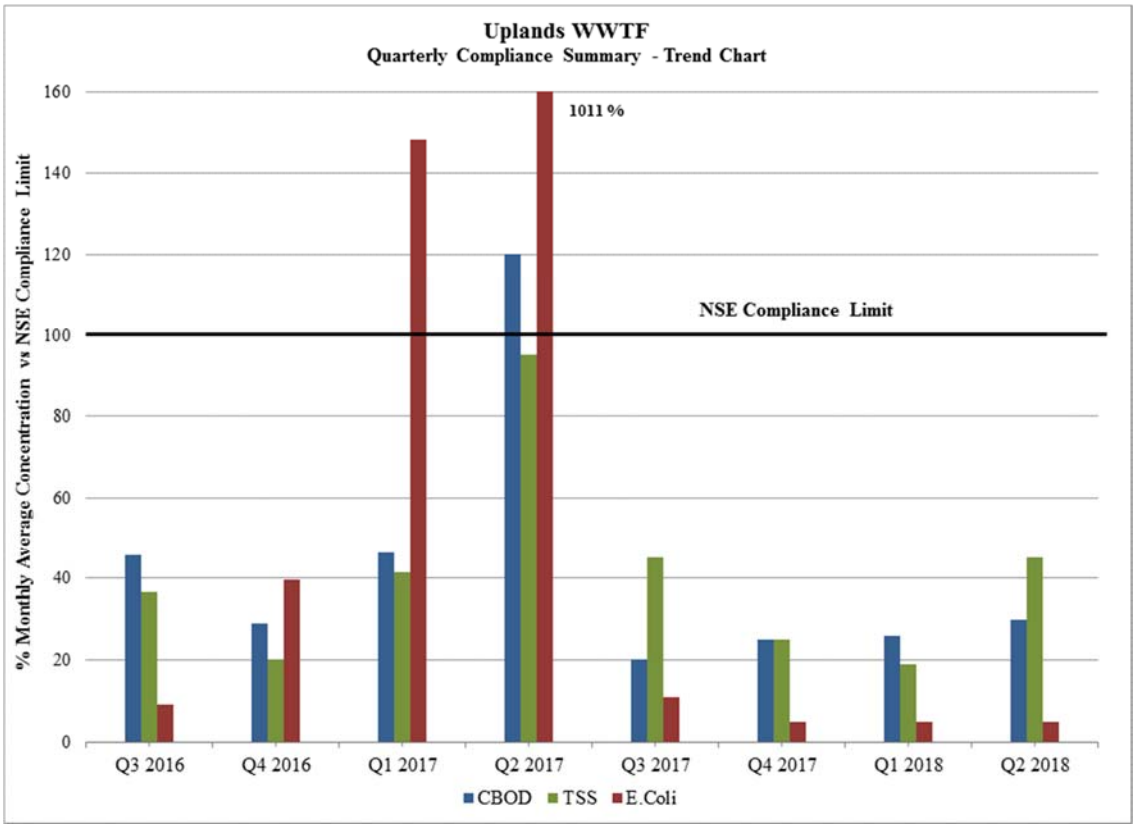

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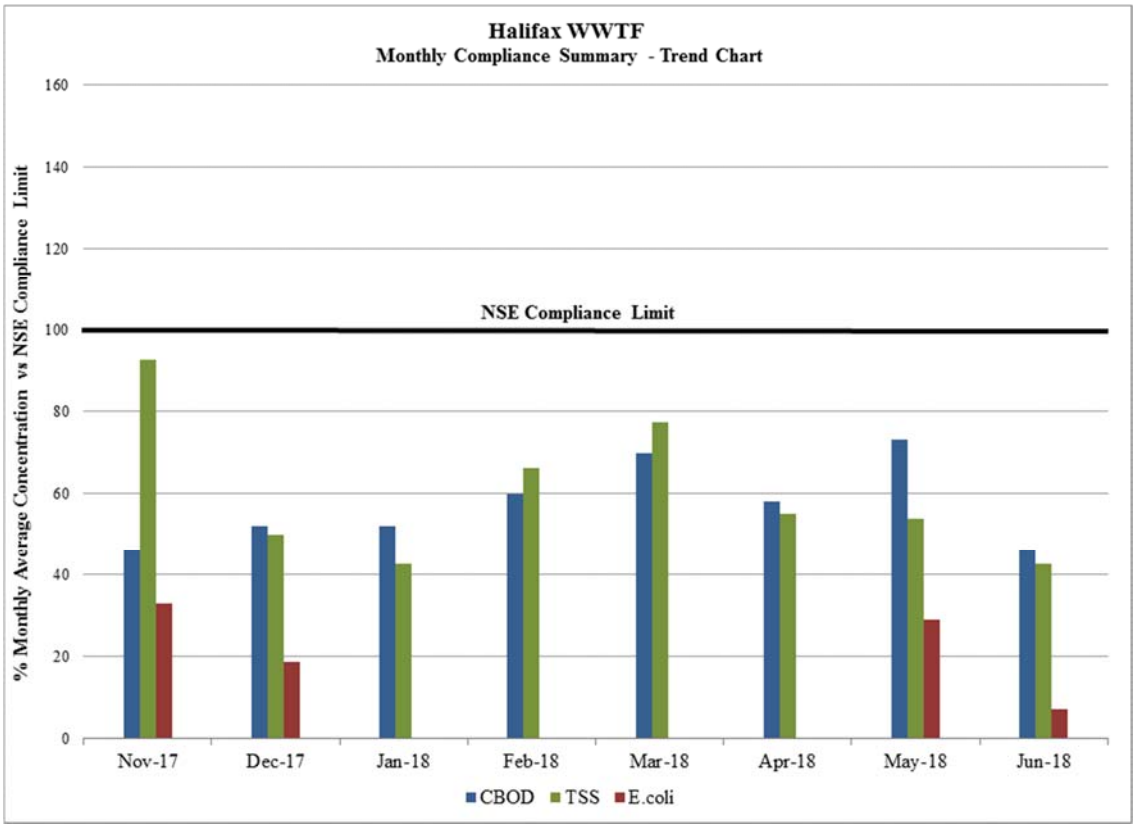

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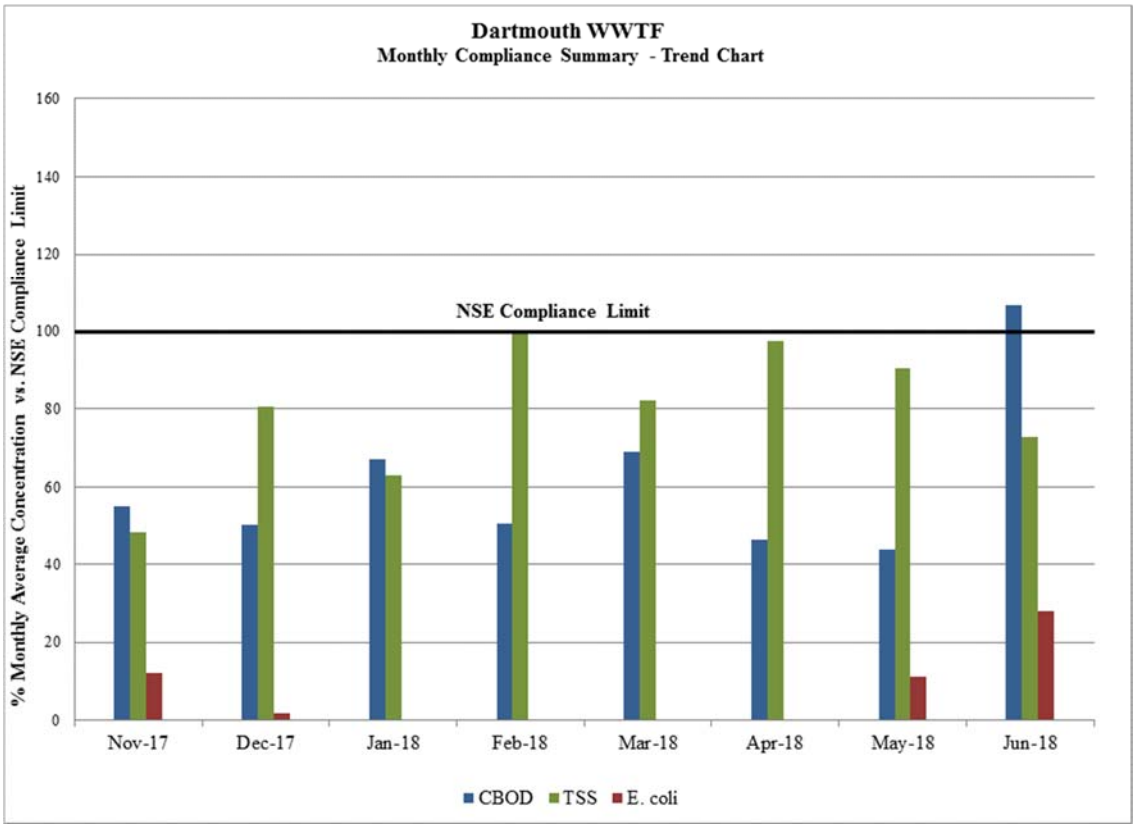

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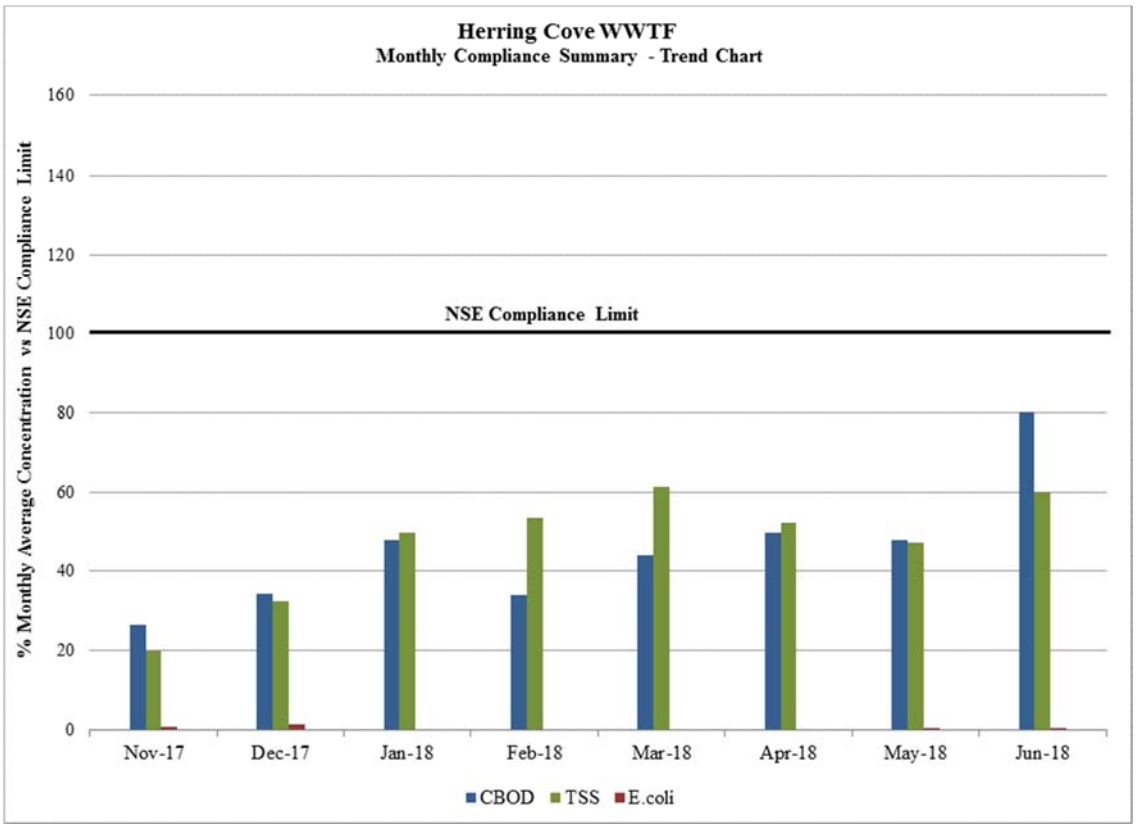

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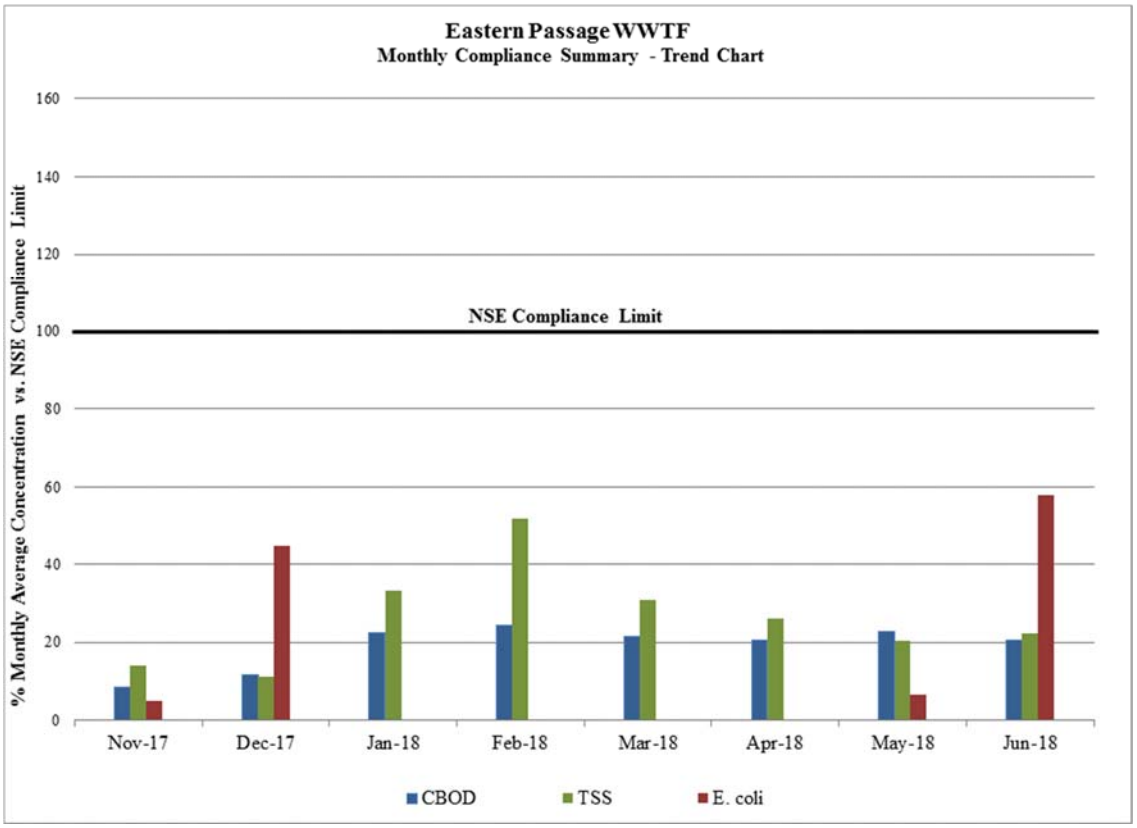
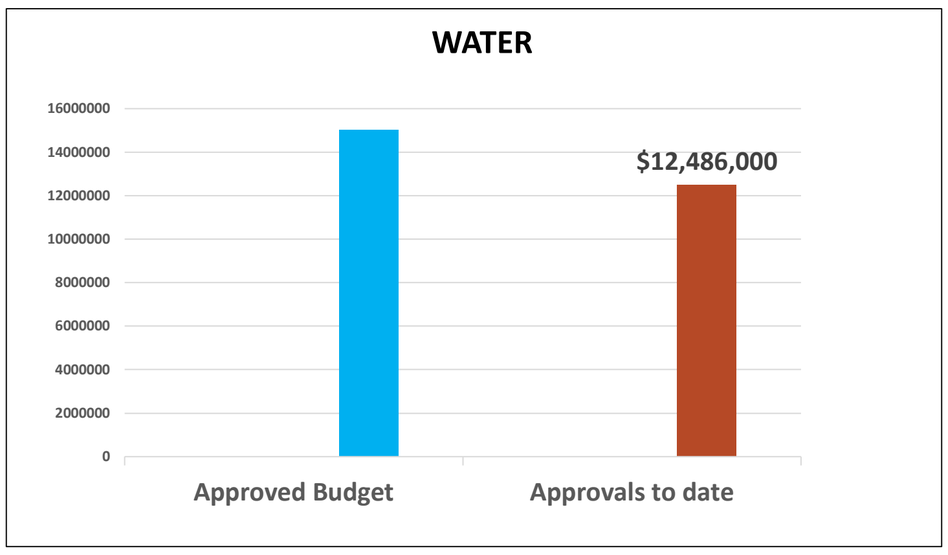
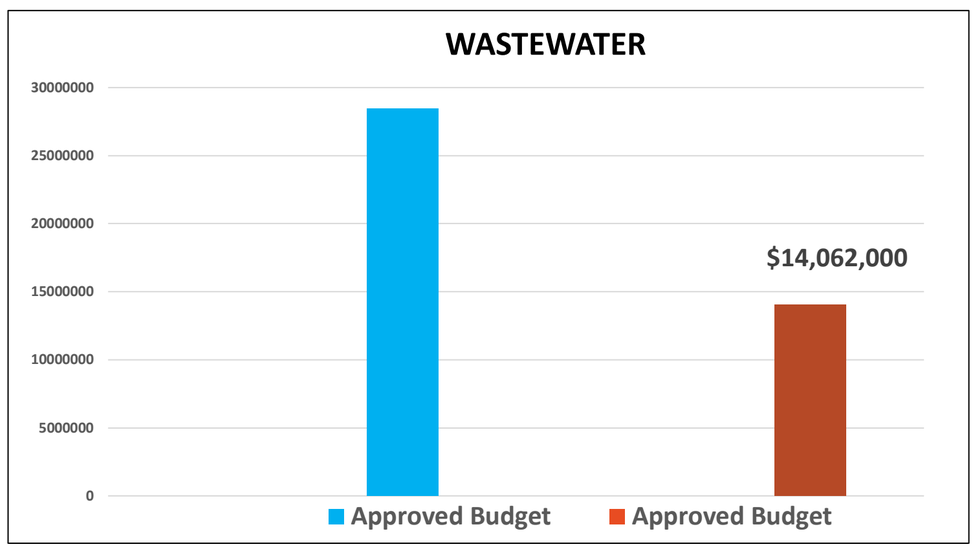

Eastern Passage WWTF
Monthly Compliance Summary - Trend Chart
% Monthly Average Concentration vs. NSE Compliance Limit
160
140
120
NSE Compliance Limit
100
80
60
40
20
0
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18
Jun-18
CBOD
TSS
E. coli

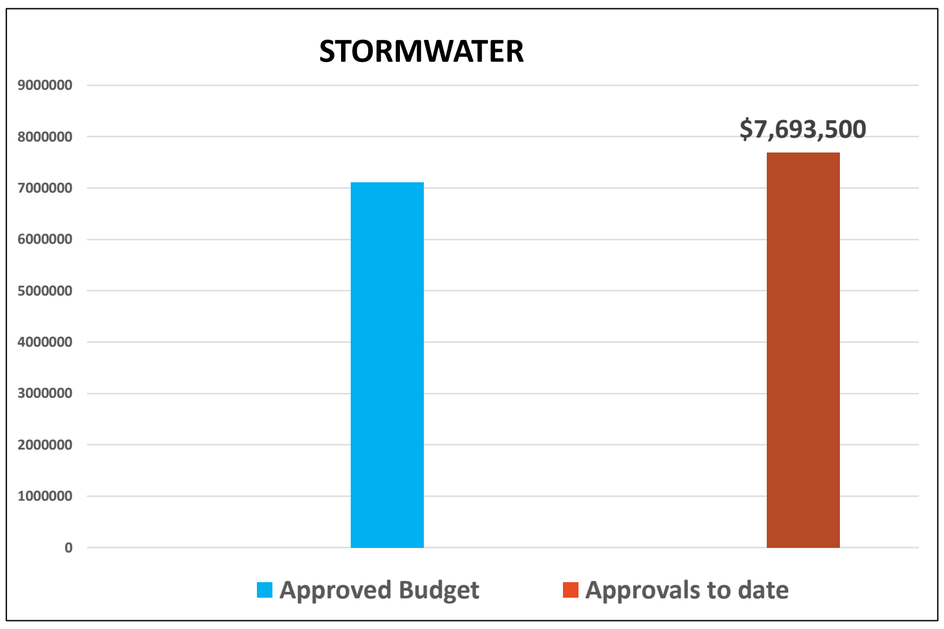
Halifax Water
Halifax Regional Water Commission

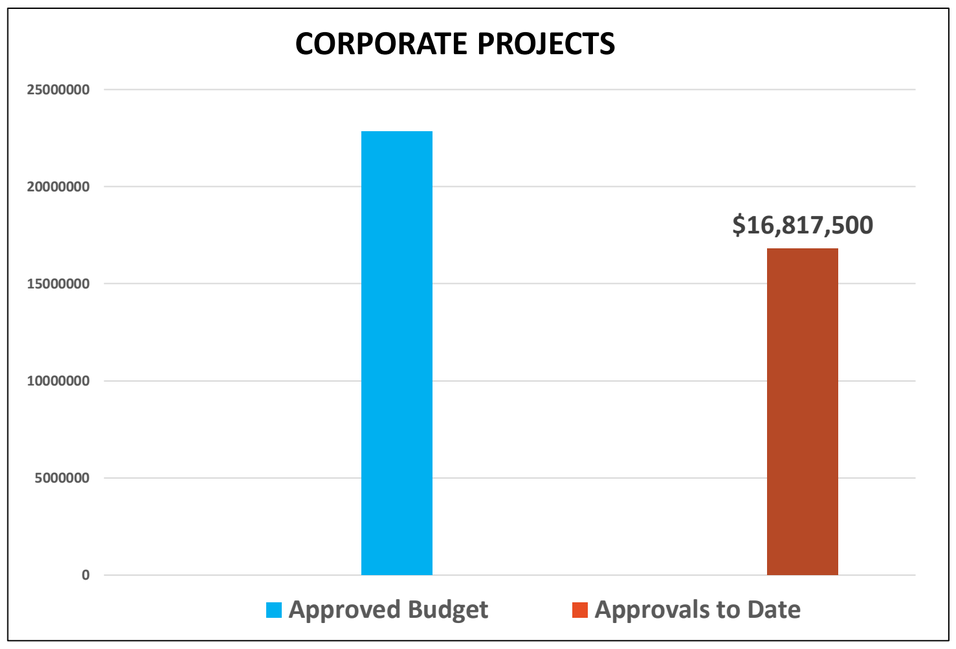
ITEM 2-I
HRWC Board
September 27, 2018

CAPITAL BUDGET APPROVALS TO DATE - 2018 - 2019









WATER
Approved Budget $15,011,000
Approvals to date $12,486,000

WASTEWATER
Approved Budget $28,471,000
Approvals to date $14,062,000

STORMWATER
Approved Budget $7,111,000
Approvals to date $7,693,500

CORPORATE PROJECTS
Approved Budget $22,855,000
Approvals to date $16,817,500

Total Budget: **$73,448,000**
Total To Date: **$51,059,000**

Total % to date **70%**

Original Signed By: *September 21, 2018*

Report Approved: **Date**
Jamie Hannam

HRWC Board Report 2- I - 2018/2019
Capital Budget Approvals to Date - September 27, 2018

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Water			
Distribution			
Water Distribution Main Renewal Program	$3,696,350	$3,500,000	4/5/2018
Valve Renewals	$125,000	$125,000	4/25/2018
Hydrant Renewals	$75,000	$75,000	4/25/2018
Service Line Renewals	$100,000	$100,000	4/25/2018
Lead Service Line Replacement Program	$600,000	$600,000	4/25/2018
Automated Flushing Program	$20,000	$20,000	2/20/2018
Water Sampling Station Relocation Program	$30,000	$30,000	2/23/2018
Watermain Renewal Stand Alone Projects, Catamaran Road ($220K), ParkmoorAvenue ($246K) and Wright Avenue Watermain ($85K)	$551,000	$0	7/16/2018
North End Feeder Replacement Concept Design Route Selection Funding Increase	$40,000	$0	7/12/2018
Energy			
JD Kline WSP - 2nd Boiler Replacement	$100,000	$100,000	2/6/2018
Lake Major WSP - Process Area HVAC Upgrades			
Equipment			
Miscellaneous Equipment Replacement	$50,000	$50,000	4/23/2018
JD Kline Purchase of Bosun Chair Lifting Safety Equipment	$9,000	$0	8/17/2017
Facilities			
JD Kline WSP Underdrains and Filter Media Replacement Program	$4,100,000	$4,100,000	1/19/2018
JD Kline WSP Raw Water Intake Travelling Screen Replacement Program	$100,000	$100,000	4/17/2018
JD Kline WSP Replace Filter Isolation Gates	$50,000	$50,000	2/23/2018
JD Kline WSP Storage Building Improvements	$76,000	$76,000	2/23/2018
JD Kline WSP Purchase New Boat for Lake sampling	$32,000	$32,000	2/20/2018
JD Kline WSP Replace Existing 4160 Transformer in Low lift Station	$26,000	$26,000	2/23/2018
JD Kline WSP New Grounding Bar for Crane	$17,000	$17,000	3/5/2018
JD Kline WSP Caustic Tank liner Replacements	$26,500	$13,000	10/8/2136
JD Kline WSP Effluent Valve Actuator Replacement Program	$100,000	$100,000	2/20/2018
JD Kline WSP Replace CO2 Feeders	$70,000	$70,000	2/23/2018
JD Kline WSP Upgrades to the Process Wastewater Lagoons	$20,000	$20,000	2/23/2018
JD Kline WSP Replace Turbidity Meters	$50,000	$50,000	2/23/2018
JD Kline WSP Ampgard III to Vacuum Contactor Conversion	$40,000	$40,000	2/20/2018
JD Kline WSP Filter Gallery Electrical Wiring Upgrades	$55,000	$55,000	2/23/2018
JD Kline WSP Pilot Plant PLC Upgrade	$19,000	$19,000	2/20/2018
Lake Major WSP - Replace Raw Water Pumping Station Design	$250,000	$250,000	5/1/2018
Lake Major WSP - Replace Contactors in the MCC	$34,000	$34,000	2/23/2018
Lake Major WSP - Butterfly valve replacement program	$100,000	$100,000	2/28/2018
Lake Major WSP - Clarifier Repair			
Lake Major WSP - New Alum and Fluoride Tanks	$145,000	$145,000	3/5/2018
Lake Major WSP - Improved access to pipe gallery	$50,000	$50,000	3/5/2018
Lake Major WSP - Purchase H-frame for fall arrest system	$9,000	$9,000	2/23/2018
Lake Major WSP - Pre-Oxidation Strategy Study	$120,000	$120,000	3/5/2018
Lake Major WSP - Yard Drainage and Parking Area Improvements	$160,000	$160,000	2/23/2018

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Lake Major WSP - East Lake Dam Repairs	$65,000	$65,000	3/5/2018
Lake Major WSP - Dechlorination System Design	$75,000	$75,000	3/5/2018
Lake Major WSP - Motor Protection Relays	$60,000	$60,000	3/5/2018
Bennery Lake WSP - Access Road Improvements Study Phase Only	$130,000	$130,000	2/20/2018
Bennery Lake WSP - Sludge Valve Replacement Program	$7,000	$7,000	2/20/2018
Bennery Lake WSP - New Low Lift VFD pump Replacement Program	$110,000	$110,000	2/20/2018
Bennery Lake WSP - Manganese Removal Strategy Study	$60,000	$60,000	2/20/2018
NON-URBAN Core WSP			
Miller Lake Small System - Supply Treatment Improvements	$50,000	$50,000	9/13/2018
Miller Lake Small System - Water storage Tank			
Collins Park WSP - Air Exchange System	$26,000	$26,000	2/20/2018
Lake Lamont - Replace Suction Piping and Chlorine Injection	$72,000	$72,000	6/6/2018
Chlorine Analyzer Replacement Program	$23,000	$23,000	2/20/2018
JD Kline WSP Replace Westinghouse Electrical Panel	$5,000	$5,000	2/23/2018
Bennery Lake WSP - Actuator for Backwash Control Valve	$13,000	$13,000	2/20/2018
Collin's Park WSP Ventilation System Upgrades	$35,000	$0	5/9/2018
Middle Musquodoboit WSP Ventilation System Upgrades	$35,000	$0	6/18/2018
Collin's Park WSP Raw Water Intake Strainer Replacement	$16,000	$0	5/1/2018
Land			
Watershed Land Acquisition			
Security			
Security Upgrades			
Structures			
Beaver Bank Reservoir Meter Upgrade	$35,000	$35,000	2/20/2018
Bedford South (Hemlock) Reservoir CCC	$250,000	$250,000	4/17/2018
Bluewater PRV Chamber CSE Retrofit	$76,000	$76,000	2/20/2018
Brunello Booster Station - Pump Control Modifications	$27,000	$27,000	2/20/2018
Cowie Hill Reservoir Rehabilitation			
Eaglewood Pumping Station - Upgrades	$9,000	$9,000	2/20/2018
Golf View Drive PRV Chamber Rehabilitation	$18,000	$18,000	2/20/2018
Leiblin Drive Booster Station - Replacement of Diesel Fire Pump			
Lyle Street Pumping Station Upgrades	$235,000	$235,000	3/5/2018
Main Control Chamber Annubar Meter Replacement	$55,000	$55,000	3/5/2018
Parkdale Booster Station Decommissioning	$22,000	$22,000	2/23/2018
Ritcey Crescent PRV - New Meter	$11,000	$11,000	2/23/2018
Robie 2 Emergency Pump - Pump Control Review and Optimization	$105,000	$105,000	2/23/2018
Sampson and Stokil Reservoirs Rechlorination System	$390,000	$190,000	4/23/2018
Steel Reservoir Inspection and Assessment Study	$175,000	$175,000	2/20/2018
Bulk Fill Service Connection for the Cowie Hill Operations Depot	$51,000	$51,000	2/20/2018
Macdonald PRV Chamber - Confined Space Entry Retrofit	$110,000	$0	3/5/2018
AMI - SAP Integration additional Funding	$220,000	$0	2/26/2018
Transmission			
Critical Valve Replacement Program - Gottingen Street	$175,000	$175,000	9/14/2018
Port Wallace Transmission Main Caledonia Section	$120,000	$120,000	5/23/2018
Bedford West CCC - Various Phases			
Regional Development Charge Studies			

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Treatment Facilities			
Lake Major - Dedicated Service Water Pumping Project	$135,000	$0	9/14/2018
(blank)			
Aerotech Park Fire Flow and Distribution System Assessment Study	$60,000	$0	9/7/2018
Structure			
Concrete Gunite Reservoir Assessment	$110,000	$0	4/5/2018
Governor's Brook Phase 3 oversizing	$116,000	$0	4/10/2018
Geizer 158 Reservoir Tank Shark Pilot $40K	$40,000	$0	4/23/2018
AMI - SAP Integration additional	$20,000	$0	4/5/2018
North End Feeder Replacement Concept Design Route Selection	$75,000	$0	4/6/2018
JD Kline Access Road Bridge Replacement Funding Increase (2015/16 CB)	$60,000	$0	6/20/2018
Steel Reservoir Inspection & Assessment Study Funding Increase	$30,000	$0	7/17/2018
East Harbour Solutions SCADA Redesign and Upgrade	$60,000	$0	9/7/2018
Geizer 158 Reservoir Perimeter Drainage	$45,000	$0	9/7/2018
Water Total	**$14,662,850**	**$12,486,000**	
Wastewater			
Collection System			
Regional Development Charge Studies			
Integrated Wastewater Projects - Program	$1,915,000	$1,915,000	4/5/2018
Wastewater System - Trenchless Rehabilitation Program	$1,535,000	$1,490,000	4/18/2018
Fairview Clayton Park Bridgeview I/I Reduction	$2,880,000	$2,880,000	4/18/2018
Inglis Street Sewer/Pier A PS Ventilation/Odour Control Modifications			
Wanda Lane Sanitary Sewer Replacement			
Auburn Avenue Sanitary Sewer	$25,000	$25,000	5/4/2018
Glendale Drive to Sackville Trunk Sewer - System Upgrade	$500,000	$400,000	4/16/2018
Manhole Renewals WW	$25,000	$25,000	4/23/2018
Lateral Replacements WW (non tree roots)	$1,650,000	$1,650,000	4/23/2018
Lateral Replacements WW (tree roots)	$520,000	$520,000	4/23/2018
Wet weather management program	$225,000	$225,000	6/4/2018
Bedford West Collection System CCC			
Young Street Sewer Separation	$100,000	$100,000	7/17/2018
Kempt Road Phase 1 - Sewer Separation			
Bayer's Road Phase 1 Sewer Separation	$75,000	$75,000	7/17/2018
Joseph Howe Drive Sewer Separation	$75,000	$75,000	7/17/2018
Romans Federal Avenues Sewer Separation	$170,000	$170,000	7/17/2018
Gottingen/North Flow Split - Alteration to Combined Sewer	$50,000	$50,000	3/5/2018
High Street WW IP 2018/19 and High Street SW IP 2018/19	$26,000	$0	5/1/2018
Glendale Drive to Sackville Trunk Sewer WWS Upgrade Funding Increase	$246,000	$0	6/5/2018
Coronation Wastewater Lateral Replacement	$100,000	$0	6/18/2018
Wastewater System Fairview, Clayton Park and Bridgeview Inflow/Infiltration Phase 2	$244,000	$0	6/29/2018
WW System - Trenchless Rehabilitation Program Phase 2	$248,000	$0	6/29/2018

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Energy			
Pump Station HVAC Retro-Commissioning Program			
Wastewater Pump Stations - NSPI Meter Relocations	$50,000	$50,000	2/12/2018
HHSP - BAS-HVAC Recommissioning			
Cogswell District Energy System - Engineering Consulting Services	$60,000	$0	7/18/2018
I&I Reduction (SIR)Program Flow Meters and Related Equipment	$25,000	$25,000	4/23/2018
Forcemains			
Pipes			
Mill Cove WWTF Emergency Overflow Outfall Pipe Replacement	$2,090	$0	7/17/2018
Security			
Structures			
Emergency Pumping Station Pump Replacements	$250,000	$42,000	8/28/2018
Wastewater Pumping Station Component Replacement Program - East Region	$200,000	$200,000	7/23/2018
Wastewater Pumping Station Component Replacement Program - Central Region			
Weybridge Lane Pump Station CCC			
Bissett PS Component Upgrade			
Roach's Pond PS Component Upgrade			
Shipyard Road PS	$915,000	$915,000	6/21/2018
Windmill Road PS Replacement - used for Northwest Arm Sewer Rehab and $90K for the Roach's Pump Station Catwalk/Stair Replacement Project and $246,000 was used for the Glendale Drive to Sackville Drive Trunk Sewer			
PS Control Panel/Electrical Replacement	$100,000	$100,000	5/14/2018
CSO Upgrade Program			
Halifax CSO Surveying	$45,000	$45,000	3/22/2018
Treatment Facilities			
Plant Optimization Audit Program	$15,000	$15,000	5/22/2018
Emergency Wastewater Treatment Facility equipment replacements			
HWWTF - Duct Work Replacements	$50,000	$50,000	5/9/2018
HWWTF - New Raw Water Pumps			
DWWTF - Duct Work Replacement	$25,000	$25,000	5/9/2018
HCWWTF - Duct Work Replacement Program	$25,000	$25,000	5/9/2018
HCWWTF - Densadeg Flow Meters	$20,000	$20,000	5/11/2018
Mill Cove WWTF - Civil Asset Condition Assessment			
Mill Cove WWTF - Compactor/Conveyor Replacement	$375,000	$300,000	5/25/2018
Mill Cove WWTF - RAS Piping Replacement	$245,000	$200,000	3/5/2018
Mill Cove WWTF - Process Upgrade Conceptual Design			
Eastern Passage WWTF - Process Upgrade Program			
Eastern Passage WWTF - Secondary Launder Covers			
Aerotech WWTF - Process Upgrade Program			
Timberlea WWTF - Asset Renewal Program			
Uplands WWTF - New Screening Facility			
Fall River/Lockview WWTF Waterline Replacement	$84,000	$25,000	6/21/2018
Fall River/Lockview WWTF Driveway Replacement			
Biosolids Processing Facility - Asset Renewal Program	$95,000	$95,000	7/25/2018
Biosolids Processing Facility - Dryer Bypass Conveyor			

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Timberlea Wastewater Treatment Facility Rotating Biological Contactor (RBC)Repairs	$120,000	$0	2/23/2018
HHSP & Eastern Passage Surge Suppression System Installation	$150,000	$0	3/29/2018
Mill Cove WWTF Laboratory Dishwasher Replacement	$12,000	$0	9/14/2018
Trunk Sewer			
Kearney Lake Road Wastewater Sewer Upgrades			
Bedford to Halifax Trunk Sewer Upgrade			
Northwest Arm Sewer Rehabilitation Additional work	$119,702	$0	5/29/2018
Structure			
Bissett Forcemain Replacement - AC Pipe Removal	$240,000	$0	10/30/2136
Roach's Pump Station Catwalk Stair Replacement	$90,000	$0	5/30/2018
Coburg Road WW IP 2018/19	$119,000	$0	6/26/2018
Emergency Pumping Station Pump Replacements - Greenwood Ave and Village RoadWW Pumping Station	$14,000	$0	6/28/2028
South Park St. WW IP 2018	$10,000	$0	9/6/2018
Coburg Road @ Robie Street WW IP 2018/19 and Coburg Road Robie Street SW IP 18/19	$177,000	$0	8/14/2018
Emergency Pumping Station Pump Replacements -Fish Hatchery Wastewater PSWW Pumping Station	$28,000	$0	8/28/2018
Emergency Pumping Station Pump Replacement - Pier A Wastewater Pumping Station	$73,000	$0	9/6/2018
Wastewater Total	**$16,907,792**	**$14,062,000**	
Stormwater			
Culverts/Ditches			
Driveway Culvert Replacements	$795,000	$795,000	7/25/2018
Street Specific Culvert Replacements:			
St. Margarets Bay Road 2797			
Lake Major Road 190	$77,000	$54,500	8/13/2018
Clarence St near civic 4	$80,000	$80,000	9/13/2018
Windgate Dr near civic 107	$80,000	$80,000	8/13/2018
Nottingham Drive near civic 53	$90,000	$90,000	6/6/2018
Penny Lane at Windsor Drive	$90,000	$90,000	8/13/2018
Knight Bridge Drive at Buckingham Drive	$81,000	$81,000	6/6/2018
Allenby Drive near civic 34	$83,000	$83,000	6/6/2018
Allenby Dr near civic 2	$83,000	$83,000	6/6/2018
Minna Drive near civic 6	$85,000	$85,000	6/6/2018
St. Margarets Bay Road near civic 2916	$91,000	$91,000	6/6/2018
Stella Crt near civic 1			
Ramar Dr near civic 6	$93,000	$93,000	8/13/2018
St. Margarets Bay Road near Second Chain Lake	$91,000	$91,000	6/6/2018
Ross Road near civic 241	$74,000	$74,000	6/6/2018
Clarence Avenue at Howard Ave	$76,000	$76,000	8/13/2018
Clarence Avenue near Morris Avenue	$69,000	$69,000	8/13/2018
Braeside Ave near civic 2	$105,000	$105,000	6/6/2018
Cow Bay Road near civic 1174	$76,000	$76,000	5/14/2018
Shore Rd near civic 1796	$88,000	$88,000	8/13/2018
Hines Road near civic 195	$82,000	$82,000	6/6/2018
Ritcey Cres near civic 1	$90,000	$90,000	8/13/2018
Orchard Dr near civic 32	$88,000	$88,000	8/13/2018
Pipes			

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Doyle Street Storm Sewer	$250,000	$250,000	8/30/2018
Integrated Stormwater Projects - Program	$1,442,000	$1,442,000	4/5/2018
Manhole Renewals SW	$21,000	$21,000	4/23/2018
Catchbasin Renewals SW	$50,000	$50,000	4/23/2018
Lateral Replacements SW	$15,000	$15,000	4/23/2018
Drainage Remediation Program - Survey/Studies			
White Birch Drive SW IP 2017/18 (additional funding $100,000)	$100,000	$0	5/1/2018
Chalamont Drive SW IP 2018/19	$50,000	$0	5/1/2018
Structure			
Ellenvale Run Retaining Wall System - Replacement	$2,525,000	$2,525,000	7/9/2018
Ellenvale Run Retaining Wall System Structure 2017/18 (additional funding from 2018/19)	$846,000	$846,000	7/9/2018
Celtic Drive Storm Sewer Renewal - Construction	$200,000	$0	8/13/2018
Culvert/Ditches			
Rhondora Drive Cross Culvert Replacement and Ditching Project	$57,500	$0	3/19/2018
Stormwater Total	**$8,123,500**	**$7,693,500**	
Corporate			
Asset Management			
Integrated Resource Plan Update	$500,000	$500,000	9/12/2018
Sewer Condition Assessment	$170,000	$170,000	9/6/2018
Storm Sewer Condition Assessment	$110,000	$110,000	9/6/2018
Driveway Culvert Data Collection Program	$80,000	$80,000	3/22/2018
Corporate Flow Monitoring Program	$1,700,000	$1,700,000	4/16/2018
Hydraulic Water Model Build			
450 - 455 Cowie Hill Road Office Space Additional work stations	$25,000	$0	4/25/2018
Facility			
East/Central Regional Operational Facility			
Building Capital Improvements			
Fleet			
Fleet Upgrade Program - stormwater	$271,000	$271,000	4/23/2018
Fleet Upgrade Program - wastewater	$1,084,000	$1,084,000	4/23/2018
Fleet Upgrade Program - water	$755,000	$755,000	4/23/2018
GIS			
GIS Application Support Program			
Dashboard Replacement			
Data Governance			
GIS Upgrade/Cityworks Upgrade	$350,000	$40,000	7/17/2018
Desktop Progression Plan			
GIS Data Build - Services			
CAD Drawing Database			
2018/19 GIS Data Program	$250,000	$0	7/12/2018

Category	Sum of Total	Net Impact on 2018/2019	Final Approval
Information Technology			
Desktop Computer Replacement Program	$290,000	$290,000	4/23/2018
Network Infrastructure Upgrades	$220,000	$220,000	4/23/2018
Document Management Program			
Computerized Maintenance Management System Enhancements			
SharePoint Implementation			
AMI/ARM Meter System Upgrades	$9,730,000	$9,730,000	4/28/2016
SAP Rate Structure Support	$220,000	$220,000	7/26/2018
Asset Registry Build	$50,000	$50,000	4/6/2018
Halifax Water Website	$268,500	$268,500	5/4/2018
Wi-Fi Design and Build			
Cayenta Optimization			
Intranet			
Permit Approvals			
Stormwater Billing Support			
Analytics and Dashboards	$127,000	$127,000	6/28/2018
Portfolio and Project Lifecycle (50,000 + 330,000) Portfolio and Project Lifecycle Project Execution of Project	$380,000	$380,000	4/16/2018
Host Static Website Project (2016/17)	$100,000	$0	5/4/2018
IT Foundations ($71,000) Helpdesk Replacement Project - Planning Phase($45,500) IT Infrastructure Project - Planning Phase Funding Increase ($85,500)	$2,000,000	$202,000	5/30/2018
Telephony	$110,000	$110,000	7/23/2018
Payroll Replacement Project	$220,000	$0	7/26/2018
SCADA & Other Equipment			
GPS Units - Replacement	$42,000	$42,000	2/28/2018
Large and New Customer Meters	$460,000	$460,000	4/23/2018
GNSS Receiver for Asset Management Data Collection	$8,000	$8,000	4/6/2018
Structure			
Mill Cove WWTF - PS Siding and Asphalt	$50,000	$0	4/27/2018
Corporate Total	**$19,570,500**	**$16,817,500**	
Grand Total	**$59,264,642**	**$51,059,000**	

Item 3-I

18-Oct-18

FINANCIAL REPORT

Consolidated balance of the four operating accounts maintained by the Commission as of:	18-Oct-18	$56,162,440
Rate of interest on the above balance -		$56,162,440.22
Investment Rate of Return	0.171%	

ITEM # 4-I
HRWC Board

September 27, 2018

TO: Ray Ritcey, 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:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: September 21, 2018

SUBJECT: **2017/2018 Annual Report**

INFORMATION REPORT

ORIGIN

Ongoing operational requirement.

DISCUSSION

Staff are pleased to present the Annual Report for the 2017/2018 fiscal year. The theme of the 2017/2018 Annual Report is “Renewal”.

As residents drove, walked or biked the region over this construction season they witnessed first-hand the unusually large volume of work taking place on their streets, and in some cases right through their backyards. With extensive resident engagement including multiple community information sessions, utilization of a variety of communications tools, ongoing project updates and the support of area Councillors, staff worked to minimize the impacts and help residents understand the benefits of these investments. The capital budget for 2017/18 included an additional $41 million from the Clean Water and Wastewater Fund that was put to good use.

With the support of our customers, the work to leave a legacy of sustainable infrastructure continues.

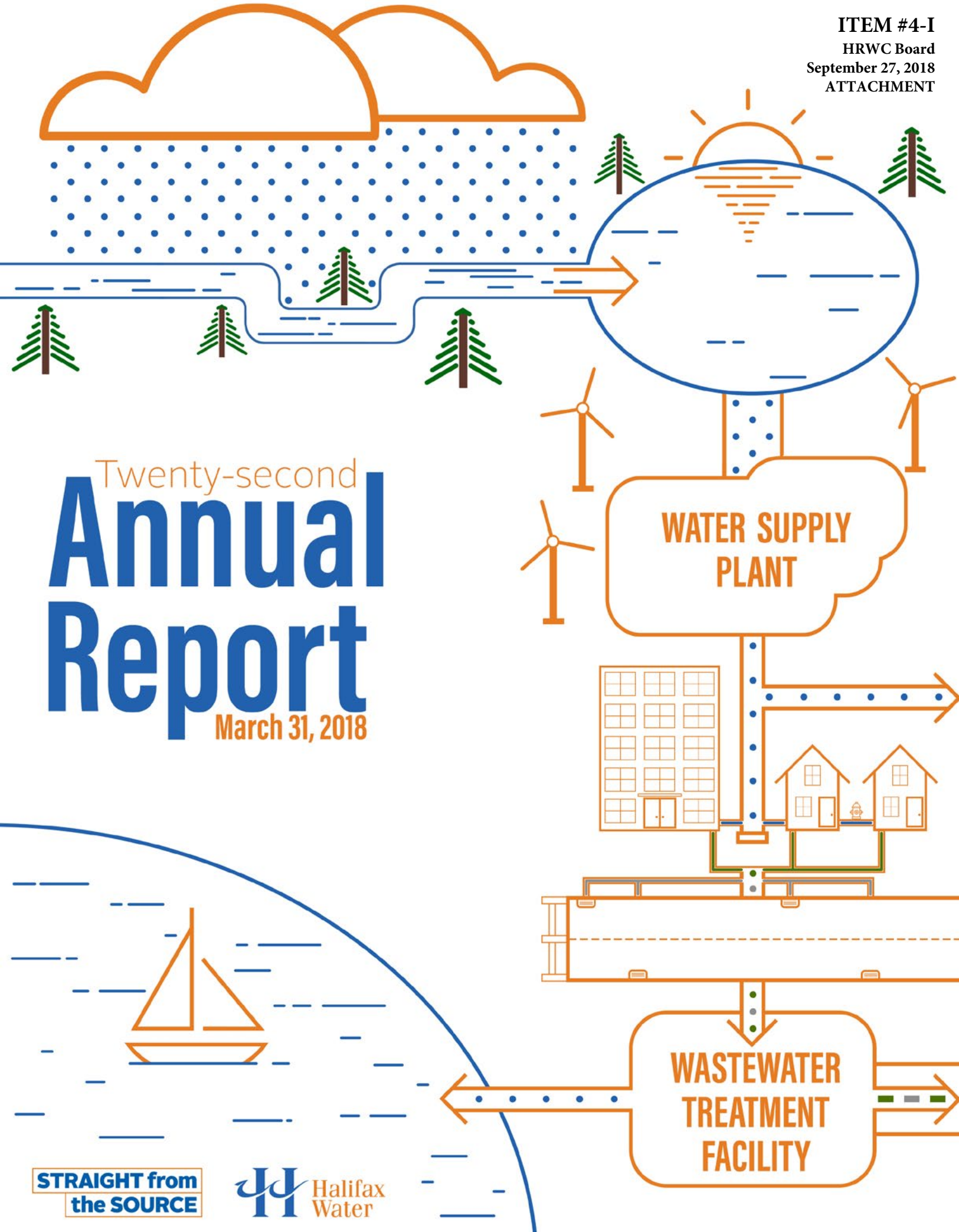
Copies of the Twenty-second Annual Report will be distributed to Regional Council members as an information report in the near future.

BUDGET IMPLICATIONS

Annual Report costs are included in the 2017/2018 operations budget.

ATTACHMENT

2017/2018 Annual Report



Twenty-second

Annual Report

March 31, 2018

STRAIGHT from the SOURCE

Halifax Water

Cover Page:

A graphic depiction of the Water Cycle, showing rain-derived water flowing down a river into a lake. That water is then treated and sent to residences and businesses throughout Halifax Regional Municipality. Once used, the water re-enters Halifax Water infrastructure via the Wastewater system where it flows to a Wastewater Treatment Facility and after treatment, re-enters the environment to complete the water cycle.

Our Mission

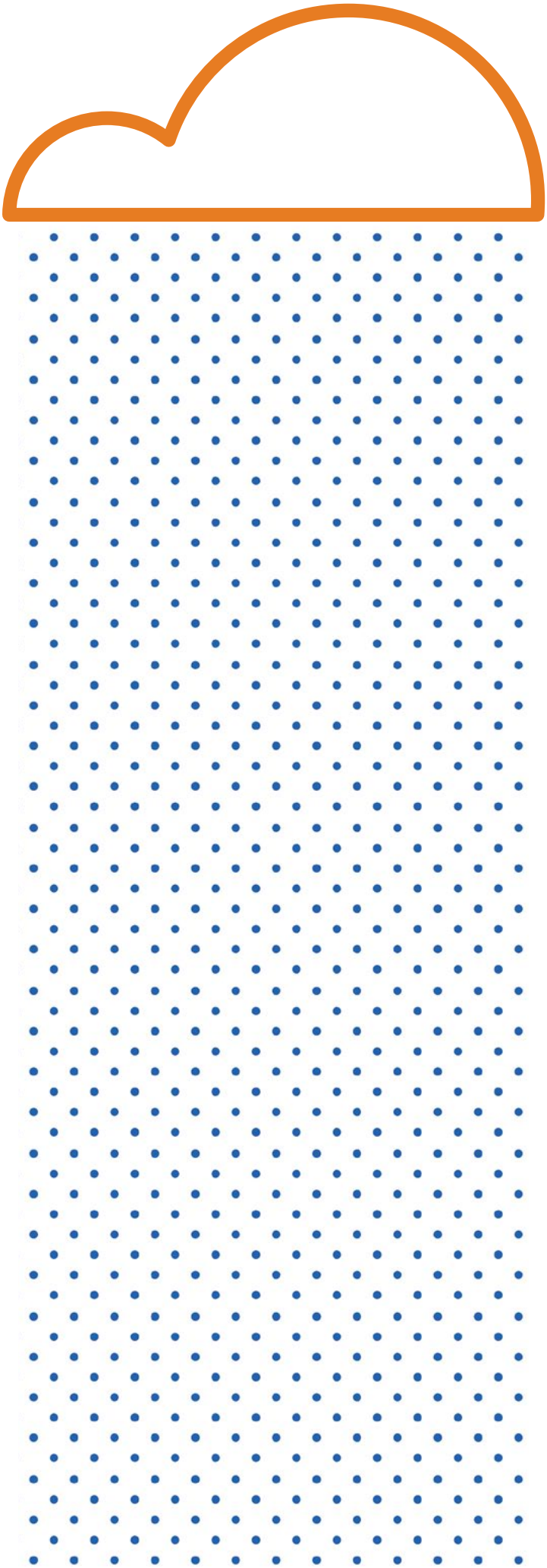
To provide world-class services for our customers and our environment.

Our Vision

We will provide our customers with high quality water, wastewater, and stormwater services.

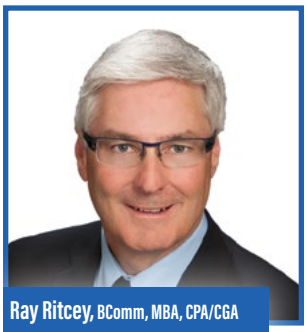
Through adoption of best practices, we will place the highest value on public health, customer service, fiscal responsibility, workplace safety and security, asset management, regulatory compliance, and stewardship of the environment.

We will fully engage employees through teamwork, innovation, and professional development.

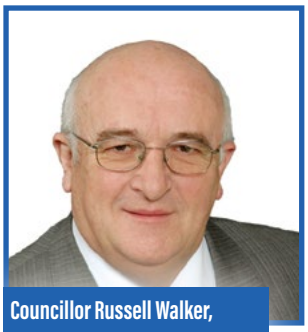


Board of Commissioners

March 31, 2018



Ray Ritcey, BComm, MBA, CPA/CGA
Chair



Councillor Russell Walker,
Vice Chair

Darlene Fenton,
Commissioner

Councillor Lisa Blackburn,
Commissioner

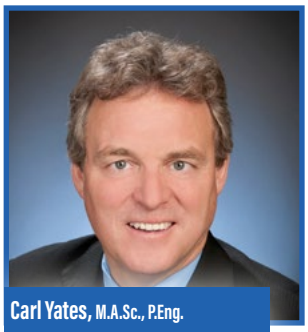
Jacques Dubé
Commissioner

Craig MacMullin,
Commissioner

Councillor Steve Streatch,
Commissioner

Councillor Lorelei Nicoll,
Commissioner

Executive Staff

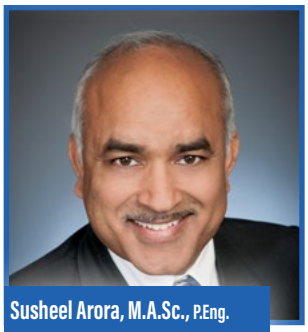


Carl Yates, M.A.Sc., P.Eng.
General Manager

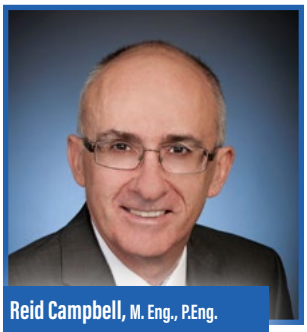
Cathie O'Toole, BA, MBA, CPA/CGA
Director, Corporate Services

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

September 7, 2018
Mayor Mike Savage and
Members of Regional Council

Re: 2017/18 Annual Report

On behalf of the Halifax Water Board, we are pleased to submit the utility's annual report for the year ending March 31, 2018, with very positive outcomes aligned with its business plan. Of particular note, last year saw a focus on infrastructure renewal with an additional $41 million in funding through the Clean Water and Wastewater Fund (CWWF) program. At the same time, Halifax Water continued with core projects to enhance customer service including the rollout of Advanced Metering Infrastructure (AMI) throughout the region and the replacement of lead service lines and an associated customer rebate program. As of August 31, 2018, there were over 26,000 meter installations with the objective to complete the AMI project by the end of 2019.

In keeping with the governance relationship with the municipality, Halifax Water filed its business plan, financial statements and an accountability report with the City. This ensures our shareholder understands the activities of Halifax Water as it carries out its mission and regional mandate.

The utility finished the 2017/18 fiscal year with excellent financial results including a net income of $8.82 million [based on the Nova Scotia Utility and Review Board Handbook] which is on par with the 2016/17 results. The net asset base of the utility increased by $58.45 million to $1.04 billion. Long term debt for the utility decreased by $12.5 million with total outstanding debt as of March 31, 2018, at $191.8 million. The debt service ratio at March 31, 2018, stood at 21.2%, which is well below the threshold of 35% whereby the municipality provides a blanket guarantee for Halifax Water debentures through the Municipal Finance Corporation. In accordance with the agreement between Halifax Water and the Halifax Regional Municipality, a dividend of $4.8 million was provided, an increase from $4.6 million for the 2016/17 fiscal year. Revenues have remained stable since the last rate increase on April 1, 2016, and cost containment continues to keep expenses in line. With the current strong financial position, Halifax Water does not anticipate filing its next rate application until 2019 or later.

Last year also saw the renewal of the Natural Science and Engineering Research Council (NSERC), Research Chair through Dalhousie University. The utility continues to realize value from this partnership and in the coming years will be expanding research activities to include wastewater. Future themes for research will centre on lake recovery for drinking water treatment strategies and optimization of wastewater treatment technologies to ensure all plants meet secondary treatment equivalency by 2040 in the most economical way. In addition to the NSERC program, Halifax Water helped to establish a national network, the *forWater* Network, designed to coordinate research to protect forested water sources locally and across Canada. Halifax Water also received international recognition for its research efforts; the utility received the Outstanding Subscriber Award from the Water Research Foundation in June 2018.

With an eye to long term planning, in 2012, Halifax Water completed an Integrated Resource Plan [IRP] that forecast infrastructure needs over a 30 year period based on projected growth, regulatory compliance and asset renewal requirements. The utility is in the process of updating the IRP for the next 30 years to ensure water, wastewater and stormwater assets are optimized to protect public health, protect the environment and support the economic growth of the region.

With the support of Regional Council, Halifax Water will continue to pursue its mission, regional mandate, and federal funding programs to keep asset renewal in the forefront and adopt innovative solutions to close the infrastructure deficit while keeping rates affordable.

Respectfully Submitted,

Ray Ritcey, BComm, MBA, CPA/CGA
Chair of the Board

Renewal

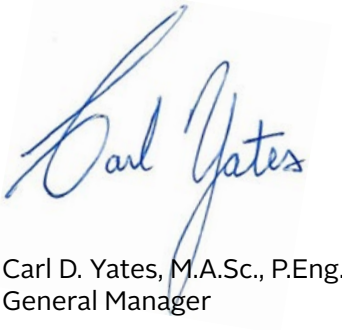
Investing in water, wastewater and stormwater is critical to the social, economic and environmental health of our community. Last year was a significant one for infrastructure renewal as the utility took advantage of the federal Clean Water and Wastewater Fund (CWWF) program. The CWWF program saw the federal government contribute 50%, the provincial government 25% and Halifax Water in for 25%. What was particularly exciting for Halifax Water was the emphasis on renewal of existing assets. As an old municipality with ageing infrastructure, this matched the strategic intent outlined in our 2012 Integrated Resource Plan (IRP) that pegged asset renewal at $1.3 Billion over a 30 year period, with another $1.3 billion earmarked for growth and regulatory compliance.

Asset renewal is the bread and butter for a water utility to ensure intergenerational equity, i.e. we look after current and future customers in a fair and equitable manner. With $41 million in associated funding through the CWWF program, the utility went to work on priority and innovative projects. These included; renewal of 4.1 KM of 100 year old trunk sewer along the Northwest Arm of Halifax; the upgrade of the Sullivan's Pond storm system in Dartmouth; renewal of 1800's vintage water mains from Chain Lake to the Halifax peninsula; replacement of the timber crib dam at Lake Major; and replacement of filter underdrains at the J.D. Kline water supply plant at Pockwock Lake. These projects were carried out with the regular capital budget expenditures including the implementation of the Advanced Metering Infrastructure system and upgrades to the Aerotech wastewater treatment facility. All told, it was a challenging year for staff and the public.

There is no doubt that many of these projects disrupted the normal traffic flow in metro in the short term but in the long run, facilitate the end game of a more robust, responsive and resilient service delivery.

It was particularly rewarding to see the daylighting of sections of the former Sawmill River downstream of Sullivan's Pond and the additional social, economic and environmental benefits that will come from this transformational project. A modern utility should always embrace the triple bottom line when making investment decisions for the betterment of the customers it serves and the environment it protects. As we update our IRP this year, we fully expect that asset renewal will continue to be a focus for the utility over the next 30 years and beyond.

Yours in service,



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

Daylighted section of Sawmill River at Sullivan's Pond

How to reach us:

For more information about Halifax Water and its services, visit our website at www.halifaxwater.ca, contact our Customer Care Centre at 902.420.9287, email us at customerservice@halifaxwater.ca, send a fax to 902.490.4749, or write us at P.O. Box 8388 RPO CSC, Halifax, NS B3K 5M1. You can also reach us via Facebook and Twitter at @HalifaxWater.

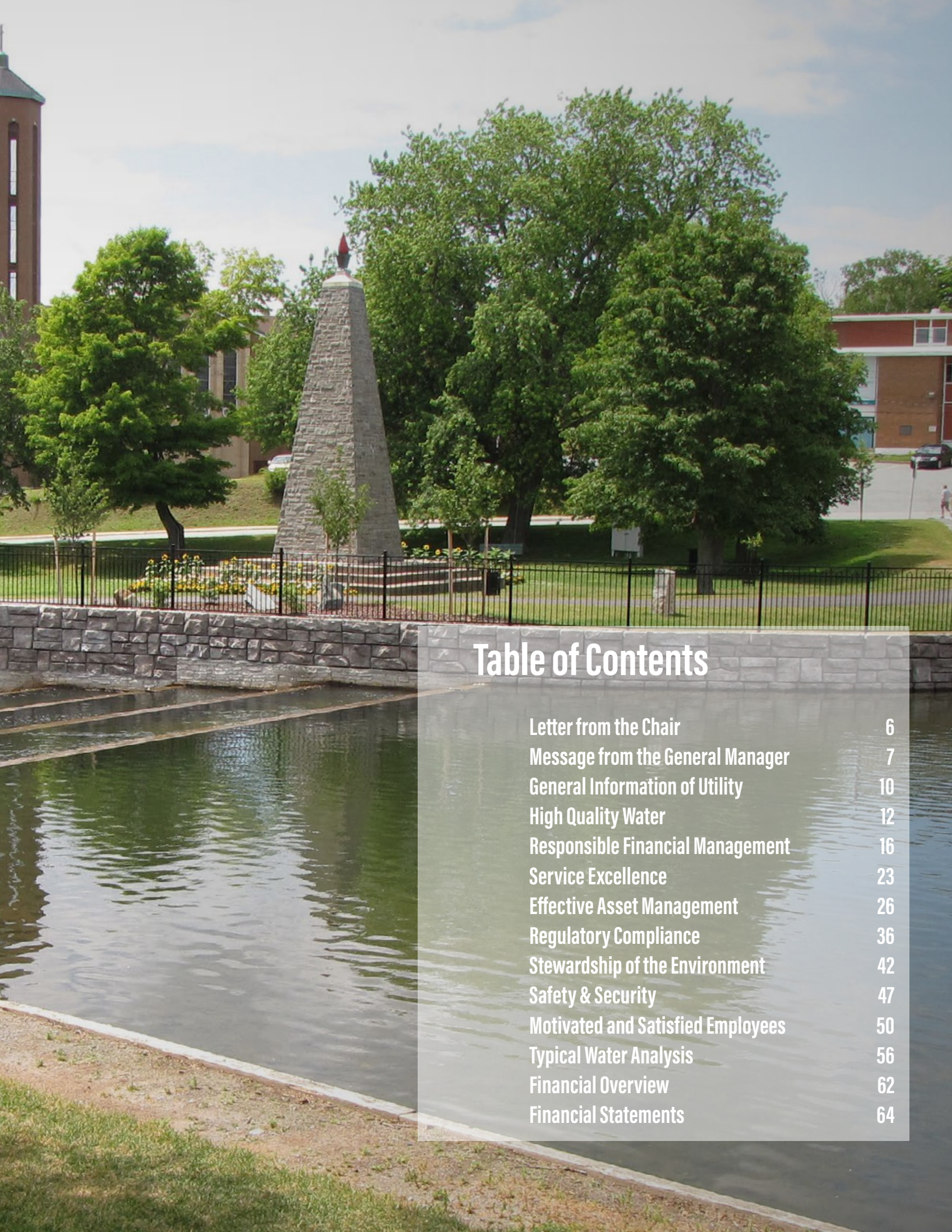


Table of Contents

General Information of Utility

Year Ended March 31, 2018

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:	80 010 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:	32 644 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	1 432.2 mm
Snowfall	117.7 cm
Measured at Lake Major	
Rainfall	1 583.1 mm
Snowfall	68.5 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	29 203 690 m³
Lake Major	11 915 070 m³
Bennery Lake	349 076 m³
Small Systems	47 853 m³
Total	**41 515 689 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	1 549 km
Main Valves	15 526
Fire Hydrants	8 350
Distribution of Pumping Stations	20
Pressure Control/ Flow Meter Chambers	142

Services & Meters

Water Sprinkler Systems (25 mm - 300 mm)	2 146
Supply Services (10 mm - 400 mm)	84 237
Meters (15 mm - 250 mm)	83 907
Wastewater Services	80 654

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, 2018

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:	32 247 054 m³

Dartmouth

Process:	Enhanced Primary - UV
Design Avg. Flows:	83 800 m³/day
Area Served:	Dartmouth
Receiving Water:	Halifax Harbour
Volume Treated:	19 119 843 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:	2 611 054 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:	8 652 553 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:	5 161 571 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:	897 691 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:	304 573 m³

Springfield Lake

Process:	Secondary - UV/ Activated Sludge
Design Avg. Flows:	543 m³/day
Area Served:	Springfield Lake
Receiving Water:	Lisle Lake
Volume Treated:	209 398 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:	53 819 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:	244 407 m³

Middle Musquodoboit

Process:	UV/RBC
Design Avg. Flows:	114 m³/day
Area Served:	Middle Musquodoboit
Receiving Water:	Musquodoboit River
Volume Treated:	71 195 m³

Uplands Park

Process:	Tertiary - UV/ Trickling Filter & Wetland
Design Avg. Flows:	91 m³/day
Area Served:	Uplands Park
Receiving Water:	Sandy Lake
Volume Treated:	30 251 m³

Wellington

Process:	Tertiary - UV/ Activated Sludge/ Reed Bleed
Design Avg. Flows:	68 m³/day
Area Served:	Wellington
Receiving Water:	Grand Lake
Volume Treated:	6 752 m³

Frame Subdivision

Process:	Secondary - UV/ Membrane Reactor
Design Avg. Flows:	80 m³/day
Area Served:	Frame Sub-Division
Receiving Water:	Lake William
Volume Treated:	6 616 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 Sewer Length	2 337 km
Total Manholes	40 279
Total Pumping Stations	166
Total Ditch Length	Aprx. 500 km
Driveway Culverts	Aprx. 18 000
Cross Culverts	2 170
Holding Tanks & Retention Ponds (12-244 00 m³)	42
Catchbasins	24 246

HIGH QUALITY WATER

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.

Lead Service Line Removal

The ongoing removal of lead service lines continued to be a focus of the utility. For homes with lead service lines, the potential for a high level of lead in drinking water is a significant concern. In 2016, the Halifax Water Board approved a comprehensive business plan for lead service line replacement, and several steps were taken in 2017 to develop this program.

The cost for replacing the portion of the service line on private property is a barrier to customers wishing to remove lead from their home.

LEADLINE

On August 22, 2017, the Nova Scotia Utility and Review Board approved a rebate program proposed by Halifax Water. Homeowners replacing the lead service line on private property are now eligible to receive a rebate for 25% of the cost of work, up to a maximum of $2500.

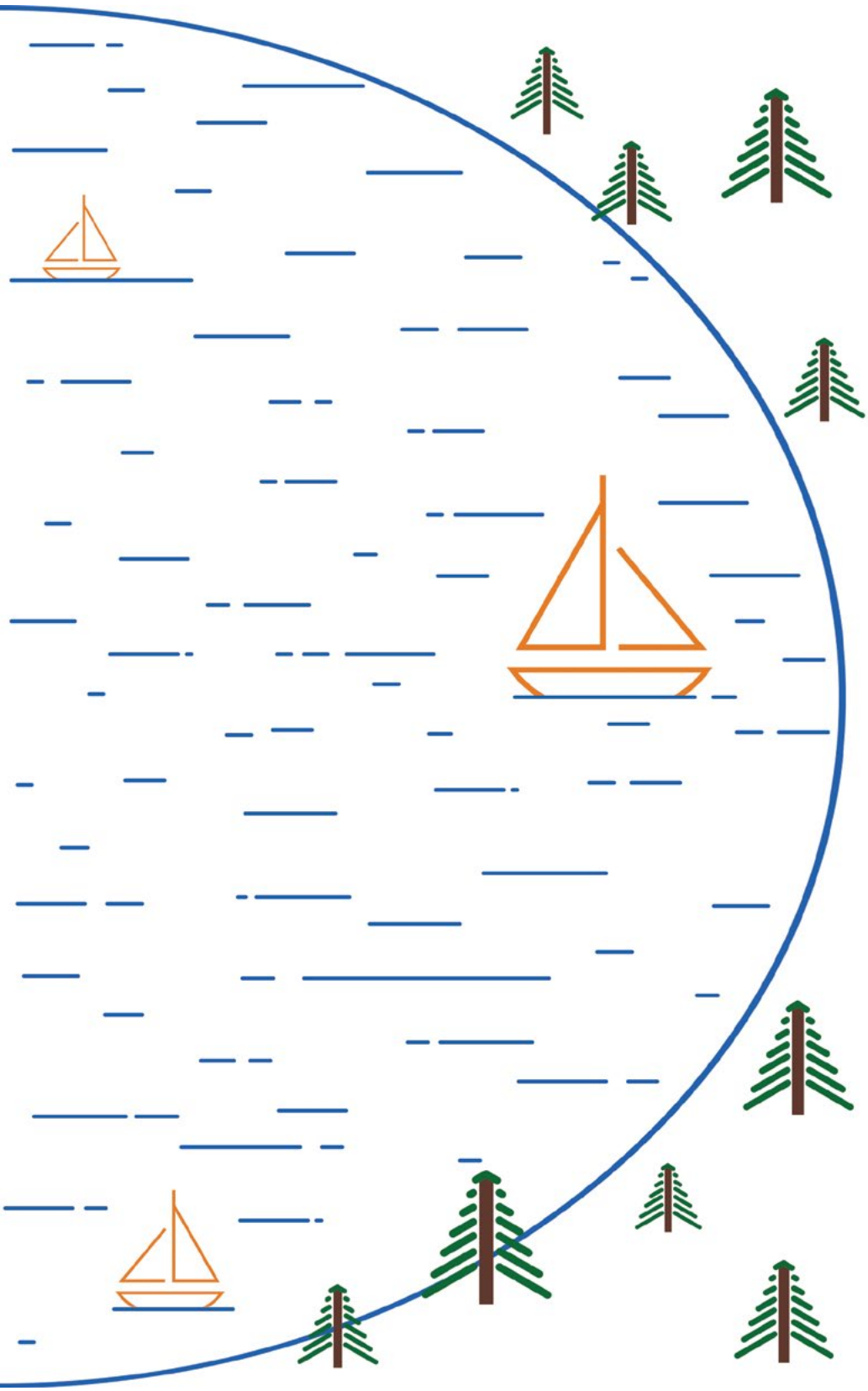
In 2017, 76 lead service lines were replaced by property owners. Eighteen were replaced after August 22 and received rebates from Halifax Water, averaging $738.

This rebate program is one of just a handful of similar programs adopted by utilities in North America and is a major step in Halifax Water's efforts to assist homeowners in dealing with lead.

The disturbance of a lead service line can occur during a water main repair or sewer lateral replacement. This disturbance can result in increases in lead levels in the residence. On rare occasions, Halifax Water may need to disturb a lead service line without giving a property owner the time required to plan for its replacement. An example of this would be repairing a water main leak where a lead service line is connected close to the location of the repair. In these instances, the residence may see increased lead levels in their drinking water. Therefore, the Nova Scotia Utility and Review Board has also approved a regulation change allowing Halifax Water to replace the entire lead service line, from the water main to the meter, at the expense of the utility, in relation to these disturbances.

Halifax Water is also continuing efforts to improve its inventory of lead service lines. This improvement will enable staff to better plan replacement programs and provide a comprehensive response to customers inquiring about lead.

Halifax Water also launched three short videos on its website and YouTube channel which provide customer information on identifying lead service lines, testing water for lead and the replacement process.



Source Water Quality

Halifax Water continues to learn about the phenomenon of lake recovery. Halifax Water and its customers have always benefitted from pristine protected water sources. These lakes were typical Nova Scotian lakes in that they contained a moderate amount of natural organic matter and an extremely low level of particles such as bacteria and protozoa that can be a threat to human health.

When our treatment plants were designed in the 1970s, 80s and 90s, our lakes were heavily influenced by acid rain which was caused by sulphur dioxide emissions, primarily from coal-fired power plants in the US Midwest and central Canada. Our lakes had low (acidic) pH and low levels of aquatic organisms such as fish, algae, and plankton. As a result, drinking water in the Halifax area had been immune to taste and odour issues.

Efforts to reduce emissions from coal plants and other industrial sources have led to the phenomenon of lake recovery. The lakes are becoming less acidic which leads to more aquatic life and increases in natural organic matter which is more challenging to treat. Lake recovery has also resulted in the occurrence of taste and odour causing compounds which our treatment plants are not currently designed to deal with.

Although this situation causes operational challenges and higher cost at our water supply plants, we continue to meet regulatory standards based on the Guidelines for Canadian Drinking Water Quality.

Halifax Water has developed a multi-year strategy to adapt to lake recovery. The first step is a project to develop a tool for selecting treatment technology and monitoring plans when source water quality is rapidly changing. This project is being undertaken through the Water Research Foundation with a $US100,000 contribution under their Tailored Collaboration program.

Other strategy components include increased monitoring and surveillance to detect source water changes and minor treatment process changes to make the plants more adaptable in the short term. Longer term components may include treatment plant upgrades.

Drinking Water Research

Halifax Water continued its drinking water research programs through the Natural Sciences and Engineering Council (NSERC) – Halifax Water Chair in Water Quality and Treatment at Dalhousie University. Halifax Water has sponsored this Chair since 2007 with Dr. Graham Gagnon, who leads a diverse team of researchers looking into water quality challenges faced by Halifax Water. Dr. Gagnon's team has made several significant findings that have shaped Halifax Water's water treatment and lead service line strategies.

Research is continuing in the areas of lake recovery and distribution system water quality.

In 2017, Halifax Water helped to launch the *forWater* Network. This research network, led by Dr. Monica Emelko of the University of Waterloo and Dr. Uldis Silins of the University of Alberta coordinates national research on forested watersheds to improve their protection. Research led locally by Dr. Rob Jamieson, and Dr. Peter Duinker of Dalhousie University will play a key role in developing Canadian approaches to drinking water source management.

Water Treatment Plant Improvements

Halifax Water continues to invest in keeping its water supply plants up to date to deal with water treatment challenges. A multi-year upgrade program to the Bennery Lake Water Supply Plant was completed in 2017. Work has also begun at the J.D. Kline Water Supply Plant to upgrade the filter underdrains and install air scour, which is an enhancement to the backwashing process. Preparatory work is ongoing at the Lake Major Water Supply Plant to upgrade plant components and replace the existing intake and lake pumping station.

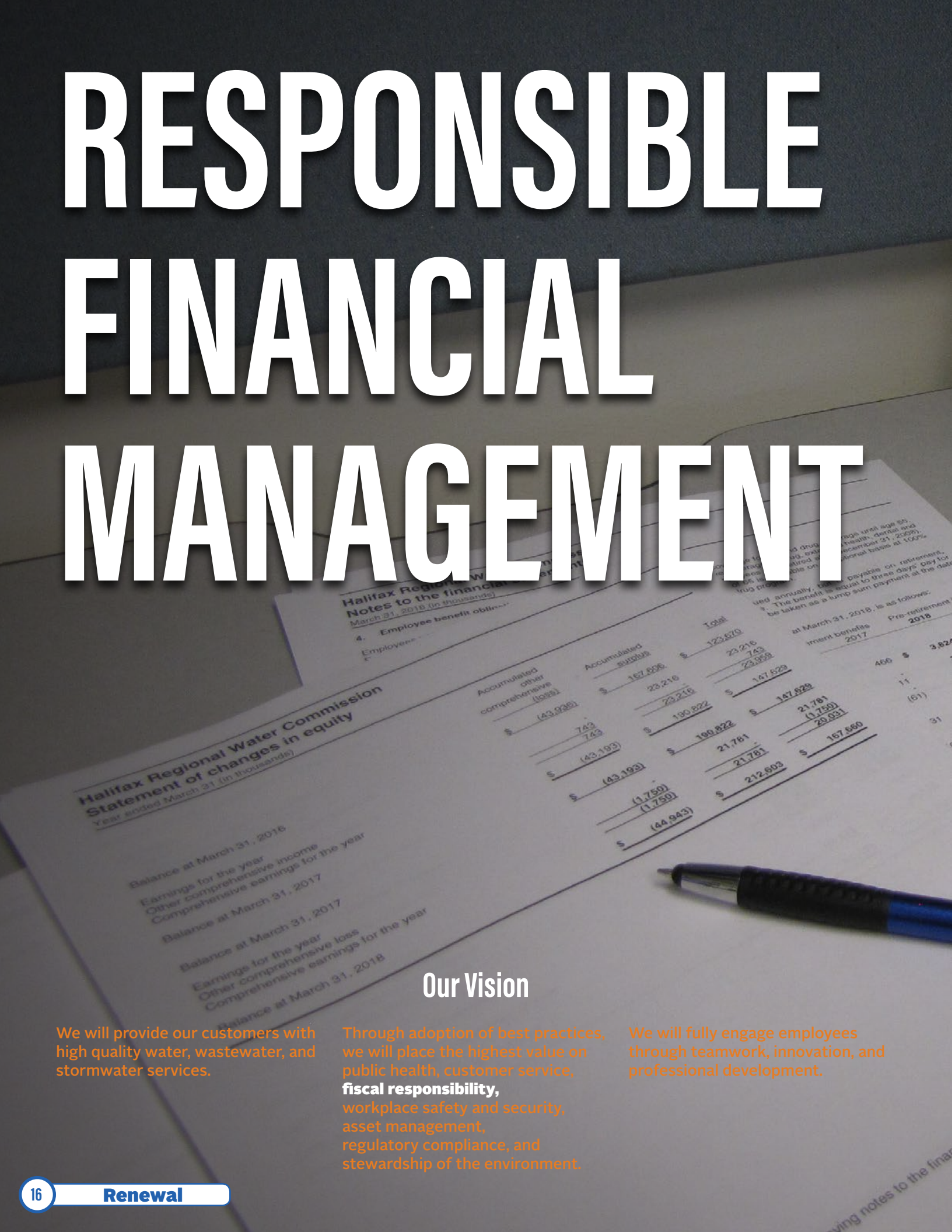
Lake Major Dam

Halifax Water completed the design of a new dam for Lake Major. The detailed approval process with Nova Scotia Environment, has been completed. Approvals have been obtained and construction began in the spring of 2018.

In addition to replacing an ageing structure, the new dam will provide improved fish passage, and increased protection to upstream and downstream properties.

Existing Lake Major Dam & Concept of New Dam

RESPONSIBLE FINANCIAL MANAGEMENT



Our Vision

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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.

Annual Financial Results

The Utility received a clean audit opinion for the fiscal year ended March 31, 2018. The financial statements are presented in accordance with International Financial Reporting Standards (IFRS). Halifax Water also produces financial information in the format required by the NSUARB - the NSUARB Accounting and Reporting Handbook (Handbook) for Water Utilities.

Annual Financial Results Continued...

The differing requirements result in two unique sets of financial statements. The financial summary information shown on page 63 of the annual report aligns with the NSUARB Handbook. The external financial statements reproduced on pages 64 to 90 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 and the NSUARB handbook will continue to be used for rate making. Schedules C, D, E, F, 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. The underlying activities and operating results are similar under the two standards.

The key differences are:

1. IFRS includes depreciation on contributed assets in the income statement, resulting in higher depreciation expense;
2. IFRS includes the amortization of contributed capital in the income statement, resulting in higher non-operating revenue;
3. IFRS requires componentization of assets records and shorter useful lives, resulting in higher depreciation expense;
4. IFRS does not permit the appropriation of long-term debt principal payments in the income statement, resulting in lower non-operating expenses;
5. IFRS requires the reporting of the full actuarial liability of employee future benefits as Other Comprehensive Income. This may result in either positive or negative impacts on income, and;
6. IFRS requires contributed capital be 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 $8.8 million. Under IFRS, Total Comprehensive Earnings are $20 million. An explanation of the difference is summarized below.

- NSUARB Handbook Net Income +$8.8 million
- Include non-cash Pension Plan expense -$5.0 million
- Remove debt principal appropriation expense +$21.2 million
- Deduct depreciation on contributed assets -$17.0 million (offset)
- Amortize contributed capital as revenue $17.0 million (offset)
- Various depreciation adjustments on componentized assets and pre-1985 assets -$3.3 million
- Loss on OCI Other Comprehensive Income (benefits) -$1.7 million
- IFRS Total Comprehensive Earnings $20.0 million

Halifax Water's cash balance of $51.5 million is down from $55.9 million in the prior year. The decline is attributable to substantial expenditures associated with the current capital projects. The liquidity on the balance sheet (ratio of current assets divided by current liabilities) is still very positive at 1.85.

Plant in Service assets, net of Accumulated Depreciation, is $1.24 billion and is $63.3 million higher than at this time last year. A total of 335 Capital Work Orders were closed during the year, representing $103.2 million in Plant in Service Additions. This was offset by retirements of Plant in Service of $3.8 million and Depreciation of $36.2 million. The Northwest Arm Sewer Rehabilitation was the largest capital project completed in the fiscal year, with a value of $23.2 million. The Dartmouth Crossing-Cutter Avenue subdivision represented the largest developer contributed asset addition at $2.2 million. Capital Assets Under Construction is down $3.9 million to $24.6 million, net of external funding received under the Build Canada and Clean Water and Wastewater Fund programs. The tables shown here highlight the major projects completed and still in progress.

Capital Asset Additions

	Cumulative '000
Northwest Arm Sewer Rehabilitation	$ 23,178
Sullivan's Pond Storm Sewer Replacement	$ 11,280
Quinpool Road/Crown Drive Water Main	$ 7,148
MacDonald Bridge Transmission Main	$ 6,964
Computerized Maintenance Management System	$ 4,155
Leiblin Drive Pump Station Replacement	$ 3,456
All other projects	$ 47,044
Total	$ 103,224

Capital Assets Under Construction

	Cumulative '000
Aerotech Wastewater Treatment Facility	$ 19,358
AMI - Automated Metering Infrastructure	$ 9,161
JD Kline Filtration Replacement	$ 1,550
Mill Cove UV Upgrade	$ 1,290
All other projects	$ 4,574
Total Capital Expenditures	$ 35,934
External Funding Received	$ (11,383)
Net Assets Under Construction	$ 24,550

Current liabilities of $50.6 million are up $8.8 million from the prior year. The increase is attributable to holdbacks and accruals associated with completed capital projects.

The Accrued Post Retirement Benefits, Accrued Pre-Retirement Benefit, Deferred Pension Liability and Supplementary Employee Retirement Plan (SERP) have been updated based on the year-end actuarial reports. The Deferred Pension Liability is $65.5 million, an increase of $7.0 million. For rate-setting purposes, the NSUARB considers Pension costs on a cash basis, not on the basis of the full Pension liability and expense accrual.

The balance of the reserve for Regional Development Charges has increased from $13.1 million to $24.2 million, which is attributable to development activity in the Halifax area.

Long Term Debt is down $12.5 million from last year, which is a net of new debt of $10.0 million, repayments of $23.5 million, and an increase in the Current Portion of Long Term Debt of $1.0 million. The debt service ratio of 21.2% is well below the maximum 35% ratio allowed under the blanket guarantee agreement with HRM.

Annual Financial Results Continued...

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 OCI, with the budget approved at the February 2, 2017 Board meeting. The final results are $10.6 million better than budget with Revenue finishing higher than budget and Expenses finishing lower than budget.

Summarized Consolidated Operating Results

	Actual 2017/18 '000	Budget 2017/18 '000	$ Variance
Operating Revenue	**$ 138,145**	$ 135,587	$ 2,558
Operating Expenses	**$ 104,452**	$ 106,241	$ (1,789)
Operating Profit (Loss)	**$ 33,694**	$ 29,346	$ 4,348
Non Operating Revenue	**$ 4,486**	$ 2,787	$ 1,699
Non Operating Expenses	**$ 34,376**	$ 38,882	$ (4,506)
Net Surplus (Deficit)	**$ 3,804**	$ (6,750)	$ 10,554

Year to Date Operating Results by Service

	2017/18 '000	2016/17 '000
Water	**$ 1,043**	$ 3,731
Wastewater	**$ 2,884**	$ 3,484
Stormwater	**$ (124)**	$ 1,643
Net Surplus (Deficit)	**$ 3,804**	$ 8,858

The NSUARB Net Profit for the year is $3.8 million, including accrued pension expenses of $5 million. When accrued pension expenses are removed, the net profit increases to $8.8 million. 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 cumulative Operating Surplus of $16.7 million at the beginning of the fiscal year has grown to $20.5 million with the net profit before other comprehensive income of $3.8 million. The accumulated Operating Surplus will be drawn down by a budget loss of $12.1 million in 2018/19 and allows another year with no rate increases for Water, Wastewater, and Stormwater service.

"...another year with no rate increases for Water, Wastewater, and Stormwater service."

Operating Revenues

Operating Revenue is slightly ahead of the previous year and $2.6 million ahead of budget with Metered Sales accounting for the difference.

Metered Sales consist of base and volumetric charges. Base charges were slightly below budget expectations. Volumetric revenue budgets for 2017/18 were based on a 3% decrease in metered consumption. Billed water consumption was unusually high in the fourth quarter. This offset the normal annual decline in consumption and resulted in consumption 0.1% ahead of the prior year.

Operating Revenue Results

	Actual 2017/18 '000	Budget 2017/18 '000	$ Variance
Consumption Revenue	**$ 85,012**	$ 82,969	$ 2,043
Base Charge Revenue	**$ 32,845**	$ 33,044	$ (199)
Wastewater Rebate	**$ (642)**	$ (1,646)	$ 1,004
SW Site Related Charge	**$ 6,169**	$ 6,700	$ (532)
Sub-total	**$ 123,383**	$ 121,067	$ 2,316
HRM Fire Protection	**$ 7,074**	$ 7,075	$ (1)
SW Right of Way Charge	**$ 3,847**	$ 3,881	$ (34)
Other Operating Revenue	**$ 3,841**	$ 3,564	$ 277
Total	**$ 138,145**	$ 135,587	$ 2,558

Operating Expenses

Operating Expenses of $99.4 million ($104.4 million less $5 million accrued pension expenses) are $6.6 million higher than the prior year and $2.4 million below the budget for the year. Compared to the prior year, expense categories with the largest increases are Wastewater Collection, Stormwater Collection, Administration and Pension, and Depreciation.

Financial Revenue

Investment income was budgeted to decrease this year as a result of accounting changes. Previously, investment income was earned in part through charges on Capital Assets Under Construction. This practice was eliminated for the current fiscal year, but higher than anticipated cash balances and rising interest rates mitigated the impact on revenue. Miscellaneous revenue is up $1.2 million including the receipt in December of a payment of $0.9 million in relation to the total completion of the Harbour Solutions project. Miscellaneous Revenue also includes various unregulated activities such as tower leases, energy generation, consulting activities and some contracted services.

Results by Activity	2017/18 '000	2016/17 '000
Regulated Activities	$ 2,203	$ 7,626
Unregulated Activities	$ 1,600	$ 1,232
Net Surplus (Deficit)	$ 3,804	$ 8,858

Long Term Debt costs decreased $0.7 million from the prior year. Debt servicing savings are a result of new debt issues having lower interest rates than older, maturing issues. New debt was issued in the Municipal Finance Corporation's (MFC's) Fall Debenture in the amount of $10.0 million. The Dividend/Grant In Lieu of Taxes is paid annually to HRM. The amount is based on the net asset value of water assets and increased this year to $4.8 million.

Activities regulated by the NSUARB show a profit of $2.2 million, a decline from the $7.6 million profit for the same period last year. Unregulated activities show a profit of $1.6 million, ahead of the profit of $1.2 million for the prior year. The profit increase is a result of the contract to treat wastewater from the aircraft carrier, the USS Dwight D. Eisenhower that visited Halifax in the summer and lower costs associated with dewatering and biosolids treatment.

Cost Containment

Cost Containment is an on-going focus for the Utility to help stabilize rates. A formal cost containment program has been in place for four years. For 2017/18 $1.9 million in new cost containment initiatives were recorded. On June 30, 2017, the cumulative total of cost containment initiatives of $6.6 million was reported to the NSUARB.

Regulatory Activity

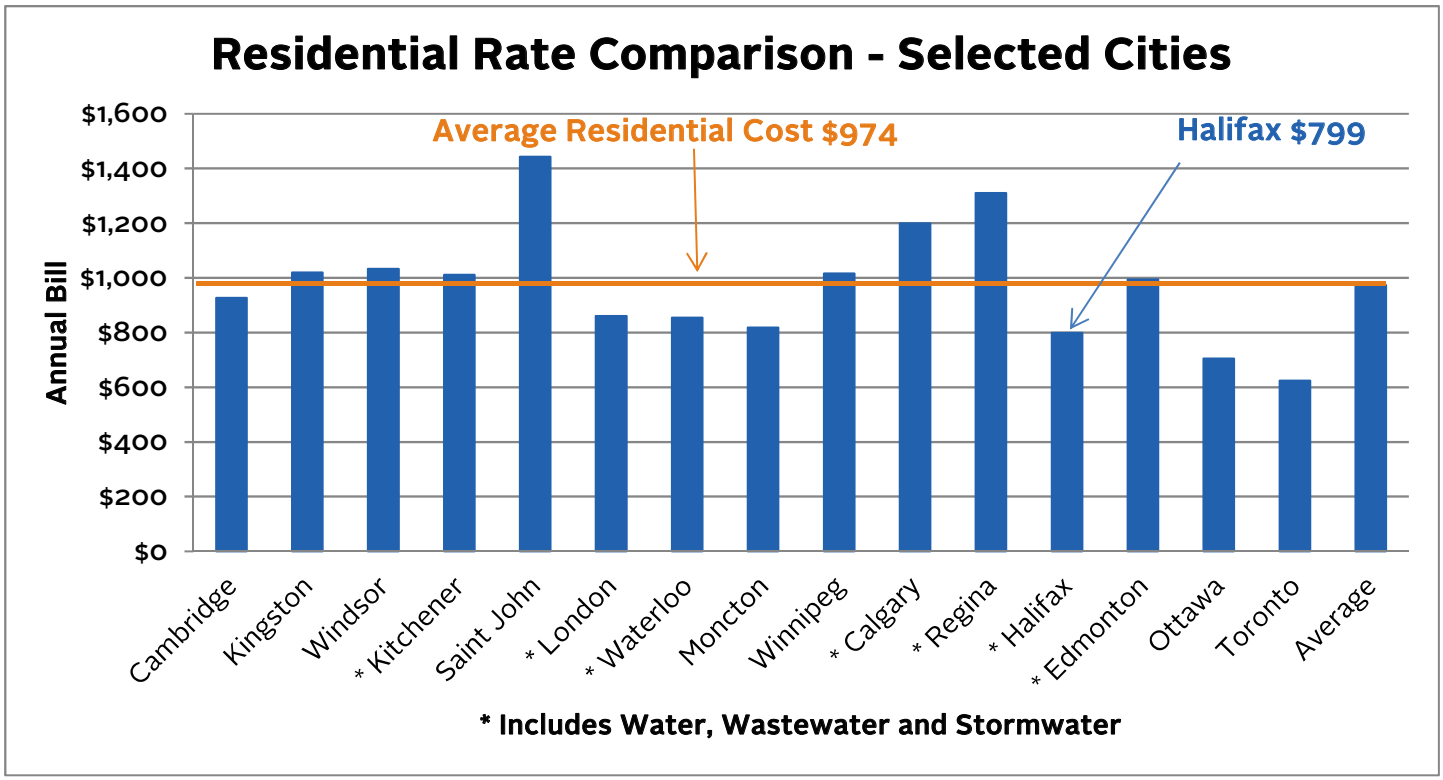
Rates for Water and Wastewater service did not change this fiscal year, having last been adjusted on April 1, 2016. A new rate structure for Stormwater Service took effect July 1, 2017. This new rate structure reset the rates, but did not increase revenues. The rate for many customers decreased, as shown in the Summary of Rate Change – Stormwater table below.

Summary of Rate Change - Stormwater	Effective July 1/17	Effective April 1/14	$ Change	% Change
Residential - Impervious Area				
Less than 50 m2	-	$ 33.39	- 33.39	- 100%
50 to 200 m2	$ 14.00	$ 33.39	- 19.39	- 58.1%
210 to 400 m2	$ 27.00	$ 33.39	- 6.39	- 19.1%
410 to 800 m2	$ 54.00	$ 33.39	20.61	61.7%
Greater than 810 m2	$ 81.00	$ 33.39	47.61	142.6%
Culvert only service	$ 14.00	Varies	Varies	Varies
ICI Rate per m2	$ 0.135	$ 0.149	- 0.014	- 9.4%

"This new rate structure reset the rates, but did not increase revenues. The rate for many customers decreased..."

Comparable Rates

From a competitiveness perspective, Halifax Water's rates compare very favourably 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 $974 from benchmarked Canadian cities.



Halifax Water Customer Assistance Programs

In 2017/18, Halifax Water took significant steps to enhance, and introduce new programs that will benefit customers with low incomes.

H2O FUND

Halifax Water has partnered with the Salvation Army since 2010 to provide emergency assistance to low-income customers through the H20 (Help to Others) Program. This program is available once in a 24 month period to a maximum grant of $250. In 2017/18 Halifax Water engaged a consultant to complete a Rate Affordability study, and the Halifax Water Board approved an expansion of the H2O Program, which was implemented in 2018. The income eligibility thresholds and the amount of assistance were increased to expand the program in April 2018.

LEADLINE

In 2017, Halifax Water implemented 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 will benefit all customers replacing lead service lines, as there is no income threshold.

THE LATERAL LOAN

Halifax Water also created a new program in 2017/18 to provide financing assistance to customers doing a full replacement of the private portion of water or wastewater laterals, or private laterals that are 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.

SERVICE EXCELLENCE

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.

Customer Care Centre

2017/18 was the first 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 water, wastewater, and stormwater operational service requests, and centralization of wastewater and stormwater calls formerly handled by HRM's 311 centre.

2017/18 Customer Care Centre Performance					
Total Calls Answered	**Average No. of Calls Daily**	**Abandonment Rate**	**Average Speed of Answer**	**Busiest Day of the Year**	**Busiest Month of the Year**
70,119	327	12%	84 seconds	March 19, 2018 583 Calls	March 2018 7,862 Calls

Customer Care Centre performance in 2017/18 fell short of performance targets primarily due to call duration and volumes increasing in the January to March period due to a convergence of annual billing of stormwater only customers and increasing calls regarding the Advanced Meter Infrastructure (AMI) project. The capacity and staffing of the Customer Care Centre is continuously reviewed in an effort to maintain high-quality customer service.

Customers also contact Halifax Water using online service requests and through a generic email customerservice@halifaxwater.ca.

There appears to be steady growth in email volumes. The email volume in 2017/18 was 6,988. A new process has been implemented to track email correspondence from customers through the CRM, meaning our ability to analyze and track email requests will be improved in future.

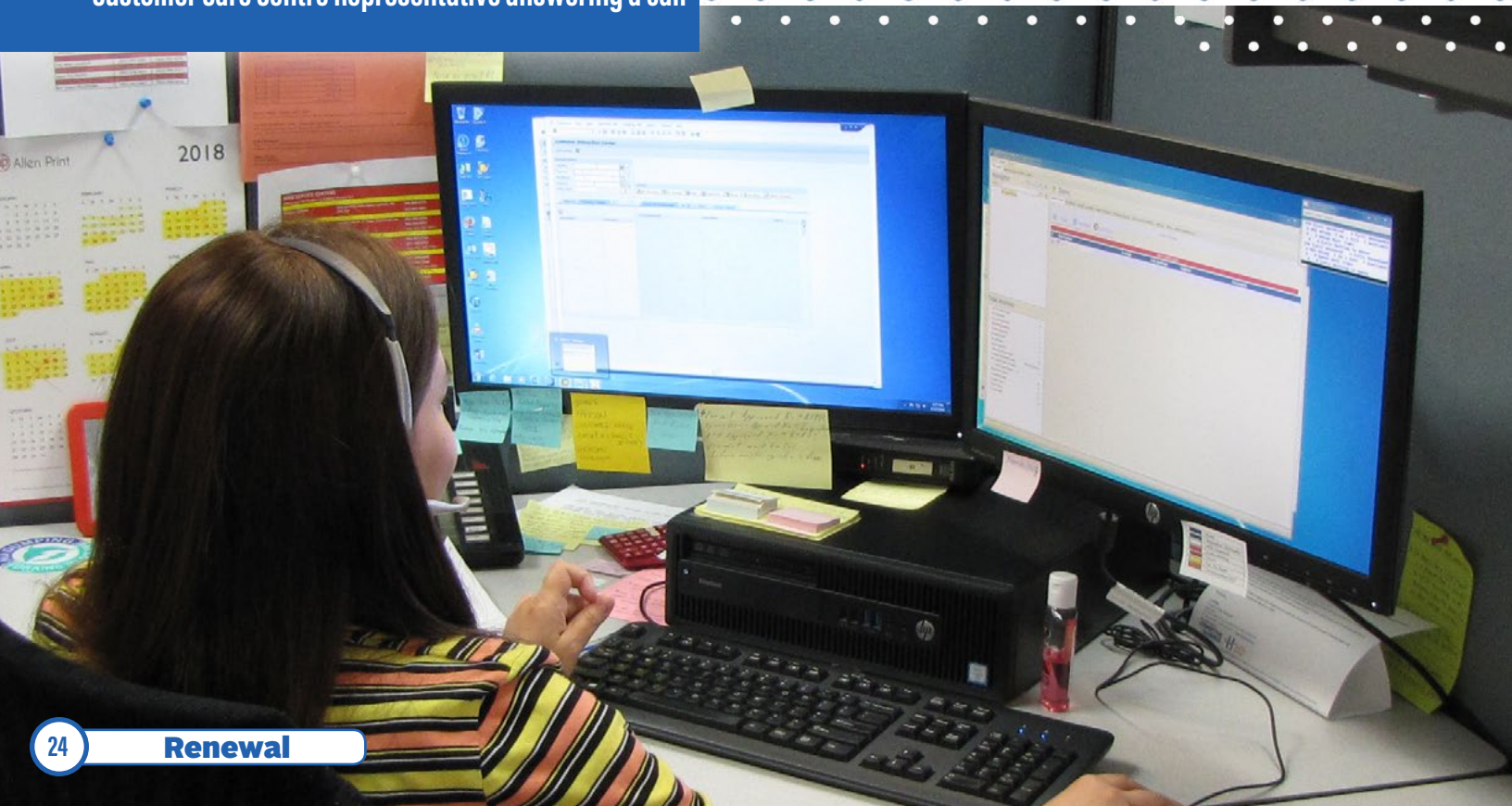
In 2017/18 a new phone number for Customer Care was implemented H20-WATR (902-420-9287), a campaign was conducted to encourage customers to subscribe to e-billing, and a new customer complaint and Dispute Resolution process was implemented.

Locates

Providing utility infrastructure locates to contractors and other utilities before they dig is an important utility function. In 2017, Halifax Water successfully launched a new business function to specialize on locating. This has improved efficiency and level of service.

In 2018, Halifax Water will be joining other local utilities in a single "call-before-you-dig" service.

Customer Care Centre Representative answering a call



Advanced Metering Infrastructure (AMI)

CUSTOMER CONNECT

AMI Meter Face

In 2016/17, Halifax Water received NSUARB approval to proceed with an Advanced Meter Infrastructure (AMI) project. By the end of 2017/18, 20,000 AMI meters were installed. The project is scheduled to be complete in late 2019. AMI is a system whereby, in lieu of meter readers walking or driving routes, a fixed network of radio devices is established over the service area to read meters on a much more frequent basis (typically hourly).

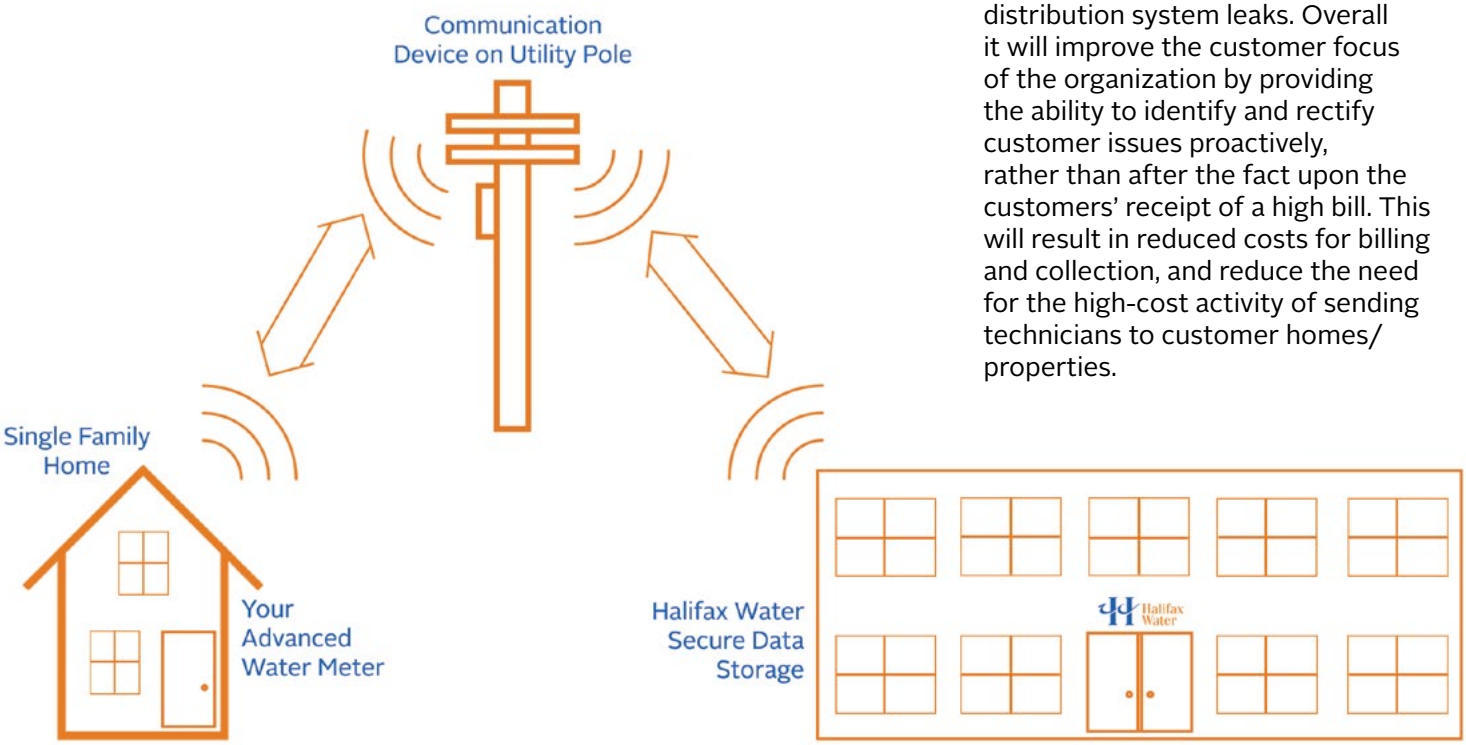
In addition to streamlining the meter reading process and reducing its cost, AMI promises many features that will improve the level of service Halifax Water can offer in the future to its customers.

These include:

- The ability to offer monthly billing to residential and small commercial customers thus 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.
- Billing errors will be reduced, and estimated meter readings will be eliminated.
- 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.
- Customers will have the ability, through a web link, to manage their water consumption 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/ properties.

Advanced Metering Infrastructure Diagram



EFFECTIVE ASSET MANAGEMENT

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.

Clean Water and Wastewater Fund

2016/17 saw the approval of five projects under the federal/provincial Clean Water & Wastewater Fund (CWWF) program. 2017/18 was the year to move these critical projects to the construction phase. Three of the projects were successfully completed, while the other two proceeded to construction and are still in progress into 2018/19.

Northwest Arm Sewer Rehabilitation

Federal/Provincial Funding: $12,257,781

The Northwest Arm Trunk Sewer (NATS) is a 100-year old combined sewer servicing 650 hectares and a population base of some 22,000 people. The trunk sewer is 4.5 km in length and is typically 1200 mm in diameter. It was constructed using a combination of materials and cross-sections. This project saw the rehabilitation of the sewer using "cure in place pipe" (CIPP), also known as "no-dig" technology. CIPP inserts a resin/fabric liner in the existing deteriorated pipe through manholes and other strategic locations. The liner is then heated to form a new, structurally sound pipe designed to last 80+ years. The $23 million project was substantially complete by December 2017. The project challenges and achievements were many and included:

- stakeholder engagement;
- wastewater bypass system;
- accessibility challenges due to the off-street location and topography of the NATS easement;
- CIPP installation lengths in excess of 400m;
- bridge load restrictions imposing constraints on material delivery;
- and a unique design approach for the arch shaped portions of the sewer.

The project goals have been achieved with an 80+ year extended life and have reduced leakage and overflows into Northwest Arm.

Sullivan's Pond Storm System Renewal Phase 1

Federal/Provincial Funding: $6,321,925

The 580 m Sullivan's Pond stormwater drainage system was constructed in the early 1970s and provides stormwater drainage from Lake Banook/Sullivan's Pond and the upstream watershed to Halifax Harbour at Dartmouth Cove. Condition inspections and investigations determined the piped system was nearing the end of its service life.

Sullivan's Pond Storm System Renewal Phase 1

Sullivan's Pond Storm System Renewal Phase 1 Continued...

The detailed design provided for the 100-year storm event and fish passage with full consideration of the impacts of climate change. Construction commenced in July of 2017 and was substantially complete by March 31, 2018. The new system includes both cast-in-place concrete and precast concrete to form the open channel, closed channel, and bridge span sections.

The project challenges and achievements included:

- provision of fish passage as stipulated by the Department of Fisheries and Oceans;
- daylighting portions of the system;
- integration of system within public parks including compatibility with ongoing historical interpretative infrastructure construction (Shubenacadie Canal Marine Railway);
- integration of system within easement on private property;
- flow management during construction including adjustment of water levels in Lake Banook (an active canoeing/kayaking lake);
- access to adjacent residential and commercial properties during construction; pedestrian and vehicle detours;
- and stakeholder engagement including several advocacy groups, local residents and five canoe and kayak clubs.

Peninsula Transmission Main Rehabilitation

Federal/Provincial Funding: $5,631,446

The project involved the upsizing/replacement of approximately 3550 metres of transmission mains along Crown Drive and Quinpool Road. The old mains had been installed in the 1800s and were part of the original system that supplied water to peninsular Halifax.

The first phase of the work involved the replacement of all three mains from the end of Crown Drive near Northwest Arm Drive to the Crown Drive/Finch Lane intersection (Peninsula Intermediate Transmission Main, the Peninsula Low North, and the Peninsula Low South Transmission Mains; approximate length of replacement was 1050 metres for each of the three lines).

The second phase involved the upsizing/replacement of the Peninsula Low South Transmission Main along Quinpool Road between Parkwood Terrace and Beech Street.

Lake Major Dam

Federal/Provincial Funding: $3,388,287

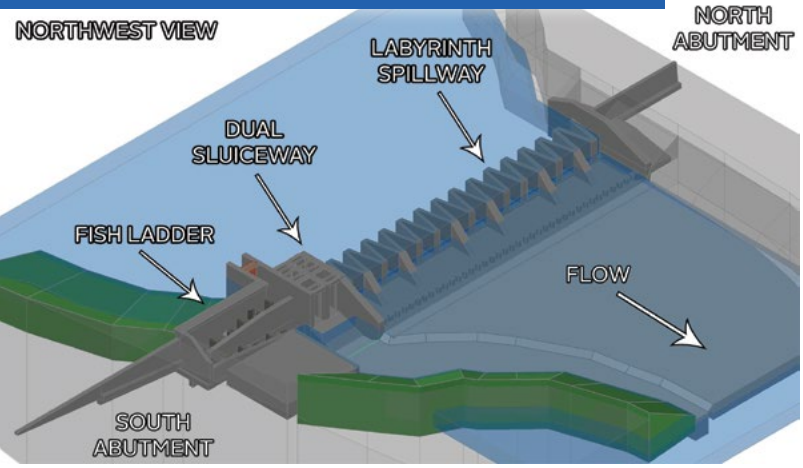
The existing Lake Major Dam was constructed in the 1940s. The timber crib structure has reached the end of its service life. The dam is in the process of being replaced in order to enhance public safety and protect the integrity of the Dartmouth water supply.

The new dam design includes a labyrinth spillway section to help mitigate flood risk, a Department of Fisheries and Oceans approved "pool and weir" fish ladder to support fish migration, and two sluice gates to provide environmental flows to support downstream aquatic life.

Construction is scheduled to begin in June 2018, with the new dam expected to be complete by winter 2019. Removal of the existing dam is anticipated to be complete by Spring/Summer 2019.

The design of the new dam meets Nova Scotia Environment requirements including conformance with an Environmental Assessment approval acquired in 2017.

Lake Major Dam Design



JD Kline Filter Media and Underdrain Replacement

Federal/Provincial Funding: $3,150,120

This CWWF funded project provides for the retrofitting of all eight existing dual media rapid sand filters at JD Kline Water Supply Plant. As of March 31, 2018 two filters are complete with the work on a third filter and air scour building under away. It takes approximately three months to retrofit each filter along with bringing the air scour capability to these filters. The estimated completion date is December 2019.

New Building Canada Fund

Aerotech Wastewater Treatment Facility Expansion and Upgrade

At a total project cost of $22 million, the Aerotech Wastewater Treatment Facility (WWTF) project, driven by compliance and growth, is benefitting from the federal/provincial New Building Canada Fund. Construction of the new facility began in September 2016 and continued throughout the 2017/18 year.

Installation of membrane modules at the Aerotech WWTF

The project is projected to be completed in early-August 2018. Halifax Water customers in this area will benefit from the significantly improved effluent quality being discharged, and the increased capacity to fuel growth within the adjacent industrial park, and the airport complex.

Bedford By-Pass Water Transmission Main

This project involved the replacement of approximately 1100 metres of the transmission main that supplies the Bedford and Sackville areas. The existing Prestressed Concrete Cylinder Pipe (PCCP) was installed in the Hammonds Plains Road and along the edge of Highway 102. This section of the transmission main had a history of previous failures, and was likely to fail again. The project involved the installation of new piping beside an existing main within a dedicated service easement, and through an existing highway crossing tunnel. Once the new supply line was installed and commissioned, portions of the old main along Hammonds Plains Road and Highway 102 were abandoned. Halifax Water worked with HRM to install a new sidewalk/multi-use trail along a portion of Hammonds Plains Road as part of the work.

Capital Infrastructure Projects

Leiblin Pump Station Elimination

Halifax Water has a significant inventory of wastewater pump stations. Many are coming to the end of their useful life, and either need replacement or comprehensive renovation.

As the capital, operational and maintenance costs of pump stations is significant, staff investigate the feasibility of eliminating a pump station via the installation of a gravity sewer. This was the case for the Leiblin Pump Station.

The Leiblin Pump Station was constructed in the mid-1960s and required an upgrade to add backup power to prevent sanitary sewer overflows during wet weather/ power outages and replace aged mechanical and electrical systems. In lieu of upgrades, the pump station was eliminated by installation of 683 metres of gravity sewer.

The project was completed in 2017 and the final cost was $3.456 million providing a much lower long-term cost versus renewing the pumping station.

Leiblin Pump Station Elimination

MacDonald Bridge Watermain Replacement

As part of the Harbour Bridge's "Big Lift" re-decking project, Halifax Water's existing water main under the suspended span of the MacDonald Bridge had to be replaced. This 600mm (24") diameter water main was originally installed in 1972 and served as a backup connection allowing water to flow in either direction should the Halifax or the Dartmouth water system need additional supply. Overall, approximately 850 metres of the 1350 metres of the existing main was replaced as part of the project. The main was deactivated and drained in March of 2015 and placed back in service in January of 2018.

The final cost of the Transmission Main Replacement portion of the project was just under $7.0 million.

The transmission main provides flow in either direction across the bridge. Depending on the supply requirements, the line can supply approximately 2 MIGPD (million imperial gallons per day) from Halifax to Dartmouth and approximately 4 MIGPD from Dartmouth to Halifax. The line is kept in active service with approximately 100 IGPM flowing all the time. This line forms a critical part of Halifax Water's water system resiliency and redundancy approach to supply and emergency management.

MacDonald Bridge

Asset Management Plans

Asset Management Team

The Asset Management (AM) Team is responsible for long-term infrastructure planning and the corporate asset management program.

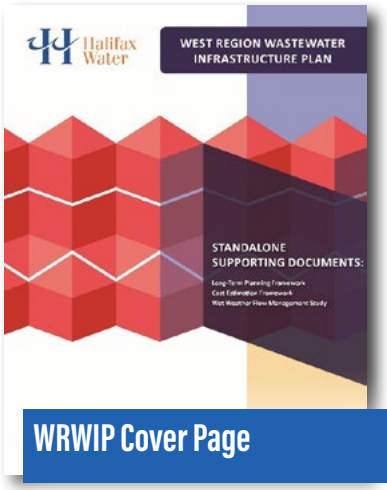
AM Team Responsibilities

Infrastructure Planning	Asset Management
Infrastructure Master Planning	Foundational Asset Management
Hydraulic System Modelling	Sewer Inspection Program
Flow Monitoring Program	Capital Budget Development

Key achievements in 2017/18 included completion of the West Region Wastewater Infrastructure Plan (WRWIP), updating the Asset Management Plan (AMP) for fiscal 2017, and completing year two of both the corporate flow monitoring program and the sewer inspection program. Additionally, the AM Team is the lead for the preparation of the annual capital budget.

WRWIP

The West Region Wastewater Infrastructure Plan (WRWIP) provides an updated capital investment plan for wastewater infrastructure necessary to support Halifax Regional Municipality's growth projections to 2047 for the west region. Highlights of the project included confirming the west region servicing strategy, enhanced system modelling, and identifying a series of wet weather projects that may free up system capacity and thereby enable Halifax Water to defer expenditures for wastewater facility upgrades into the future. The WRWIP also provides the foundation for continuing infrastructure planning for the east and central wastewater regions, as well as all water regions in future years.



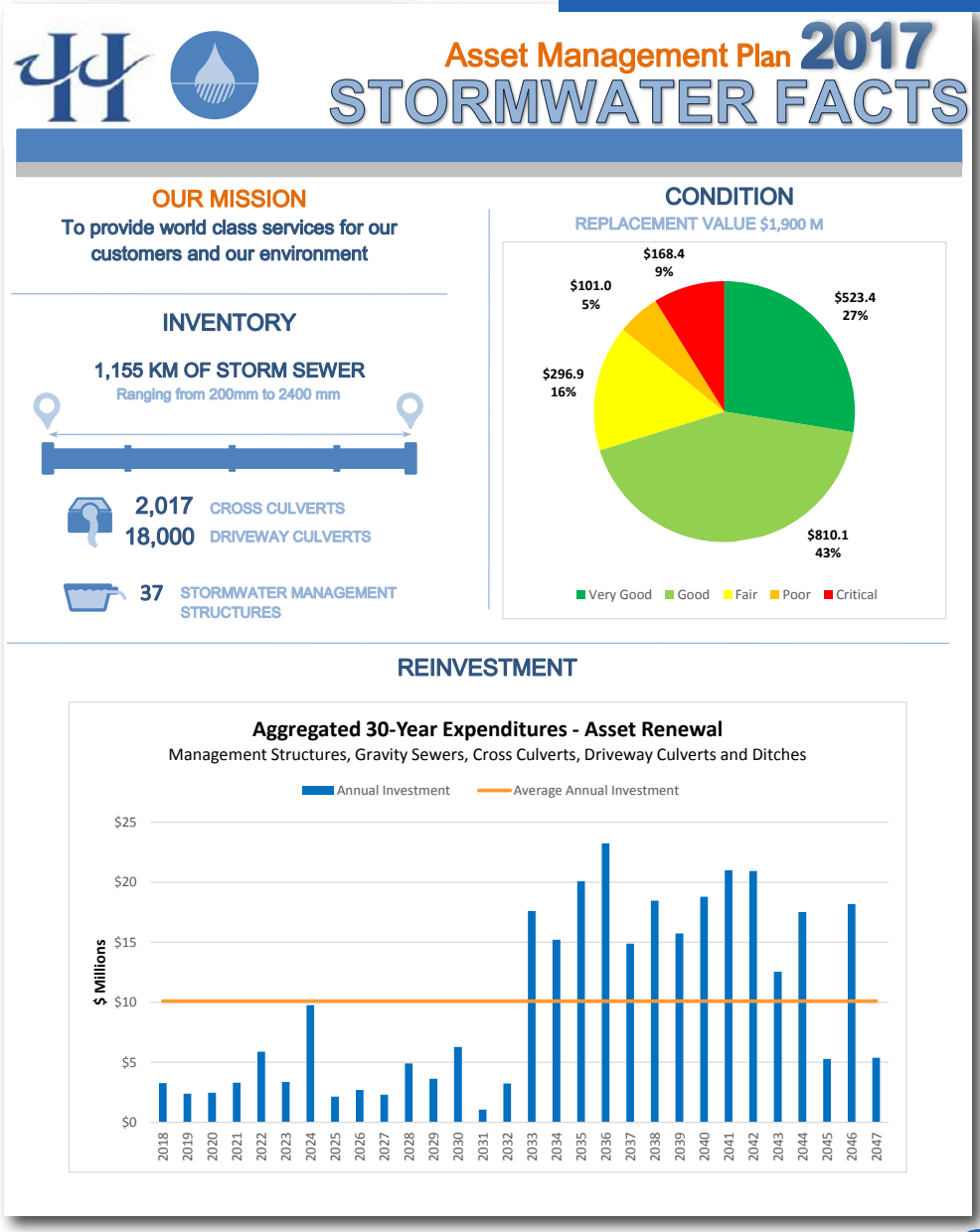
WRWIP Cover Page

2017 Asset Management Plan

The 2017 Asset Management Plan (AMP) involved significant effort to fill data gaps and resolve data inconsistencies. The resulting update provides an improved picture of the state of Halifax Water infrastructure assets and lays the groundwork for moving into focused asset management implementation teams.

Fact sheets for each of the infrastructure service types illustrate the aggregated information of the asset classes within each service type.

AMP 2017 Stormwater Fact Sheet

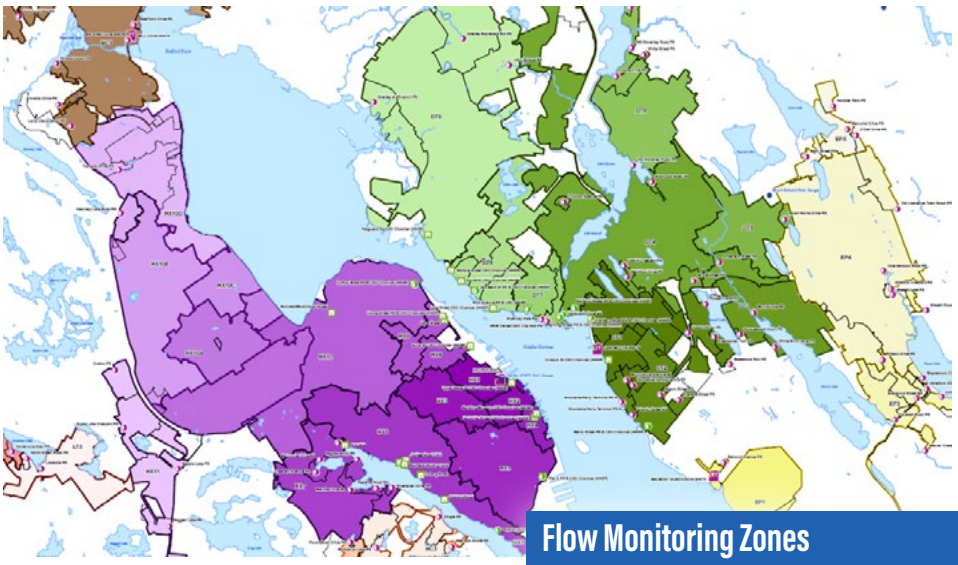


Asset Management Plans Continued...

Corporate Flow Monitoring Program

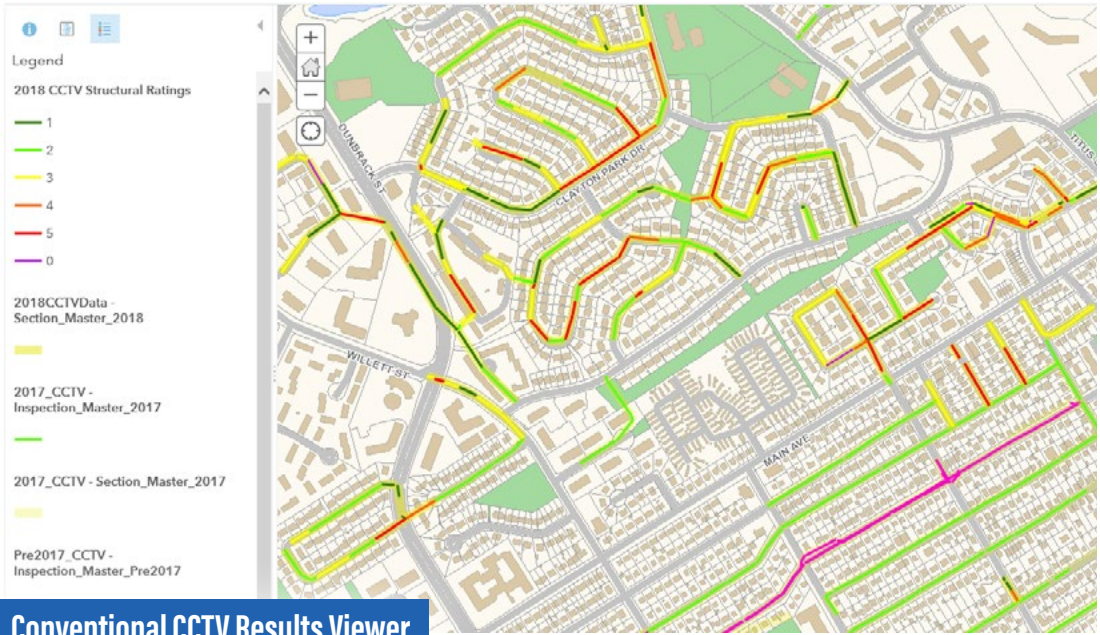
Year two of the corporate flow monitoring program resulted in the deployment of a total of 63 flow monitors: 47 for the Flow Monitoring Zones (FMZs shown in the adjacent map), and 16 for the Wet Weather Management Program (WWMP). This program continues to provide valuable information that is used in advance of specific capital projects, to calibrate the hydraulic models to the way the system operates, and enable monitoring before, during, and after wet weather-related projects.

Typical Field Set Up for Monitor Installs



Flow Monitoring Zones

Flow Monitor Installation Site



Conventional CCTV Results Viewer

Sewer Inspection Program

Year two of the sewer inspection program saw an increase in production. In 2017/18, 50,150 metres of sewers, 538 manholes, and 289 catchbasins were inspected. In addition to the production increase, staff worked with a variety of Geographic Information Services (GIS) tools to create easier ways to share the inspection outcomes. ArcGIS viewers were used for conventional closed circuit television (CCTV) inspection and ArcGIS Online Operations Dashboard was used to display zoom camera inspection results.

Energy Management

Energy use in urban water and wastewater/stormwater treatment facilities and their respective distribution and collection systems remains among the highest in North America, typically consuming 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 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 2017/18.

- Various equipment and infrastructure upgrades were completed in 2017/18, as well as a number of ongoing annual operating initiatives. A number of other projects are being considered for future implementation. The technical and financial feasibility of each opportunity will determine which projects are taken on. Projects and initiatives completed in 2017/18 resulted in over 4,495,000 kWhe in annual energy savings, over $458,000 in cost savings, and over 2,400 Tonnes CO2e in GHG (greenhouse gas) reductions. Completed projects and annual initiatives are shown in the table below.

- Use of the Energy Management Information System continued in 2017/18, with the addition of potable water consumption data for all of Halifax Water's facilities, and water and wastewater treatment flow data for the larger facilities. These efforts improve the accuracy of data for each facility.

- Early stage development of the Cogswell District Energy System (DES) has also continued. The preliminary design of the underground linear infrastructure (i.e., DES distribution piping systems) was started in 2017/18, along with a by-law review of similar Canadian systems. Stakeholder information packages are being developed to facilitate the promotion of the project to the local community and updating of the business case to reflect any changes coming from the 60% design exercise. Halifax Regional Municipality has also completed amendments to their City Charter, adding language that will allow district energy systems to be implemented within the city's boundaries, and designating the Cogswell Redevelopment Area a mandatory connection zone for the DES. Next steps include the completion of the detailed designs for the linear infrastructure, 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 of these projects. Current projects include the Aerotech WWTF Upgrade, Kearney Lake Trunk Sewer Pump Station upgrades, and the Mill Cove Pump Station upgrade project.

- 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.

Mill Cove WWTF UV System Upgrade

Overall results for 2017/18 were excellent, with an overall annual energy reduction of -7.2%, an aggregate reduction in water and wastewater flows of -0.9%, and an overall reduction in GHG emissions of -5.9%. 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.

Service Area	Facility	Project/Initiative	Annual Savings ($)	Energy Reductions (kWhe)	CO2 Reduction (tonnes/yr)	Energy Source
Capital Project Completions						
Water	JD Kline	Boiler Replacement	$ 3,800.00	47,448	12	Heating Fuel Oil (HFO)
Water	JD Kline	Admin HVAC Upgrades	$ 83,350.00	482,023	71	HFO/Electricity
Wastewater	Mill Cove WWTF	Pump Station Upgrade	$ 26,041.00	241,300	202	Electricity
Wastewater	Mill Cove WWTF	Ultraviolet Light Upgrade	$ 139,698.00	1,253,293	880	Electricity
Wastewater	Dartmouth WWTF	Ventilation Air Heat Recovery	$ 45,133.00	801,078	130	Natural Gas
Annual Initiatives						
Wastewater	*HHSPs + EPWWTF	Ultraviolet Light Shutdown	$ 160,632.00	1,669,913	1,169	Electricity
			$ 458,654.00	4,495,055	2,464	

*Halifax Harbour Solutions Plants & Eastern Passage Wastewater Treatment Facility

Information Technology

Information Services developed a Five-Year Information Technology Strategy that focused on improving the customer experience with Halifax Water. This plan incorporates all aspects of customer service, from the Customer Care Centre, to the online experience. The strategy will help modernize our telephone system, improve our systems integration, and rebuild our website. The website rebuild will incorporate input from our customers to make it more user-friendly.

Halifax Water will also implement better IT disaster recovery capabilities.

Future initiatives will provide our customers with AMI meters, online access to their water consumption and billing information. This information can be used by our customers to detect leaks in a timelier manner. Improvements were made to several of our applications including our work order system, our service approvals system, and our Geographic Information System (GIS).

Technical Workgroup	Updating Workgroup	Business Solutions Workgroup
System Admin & Maintenance	Database Updating & Maintenance	Digital Mapping & Data Products
Application Development & Support	Data QA/QC	Web GIS Governance & App Development
Analysis & Technical Solutions	Capital CAD Program	Data Sharing Agreements

The Engineering Information (EI) Team is responsible for the enterprise Geographic Information System (GIS) including application support, system and server administration and database administration and maintenance. The EI team also produces hard copy and digital mapping and web GIS applications for internal and public use.

The EI team also updates and maintains the GIS database as well as performs quality control (QC) measures on the data.

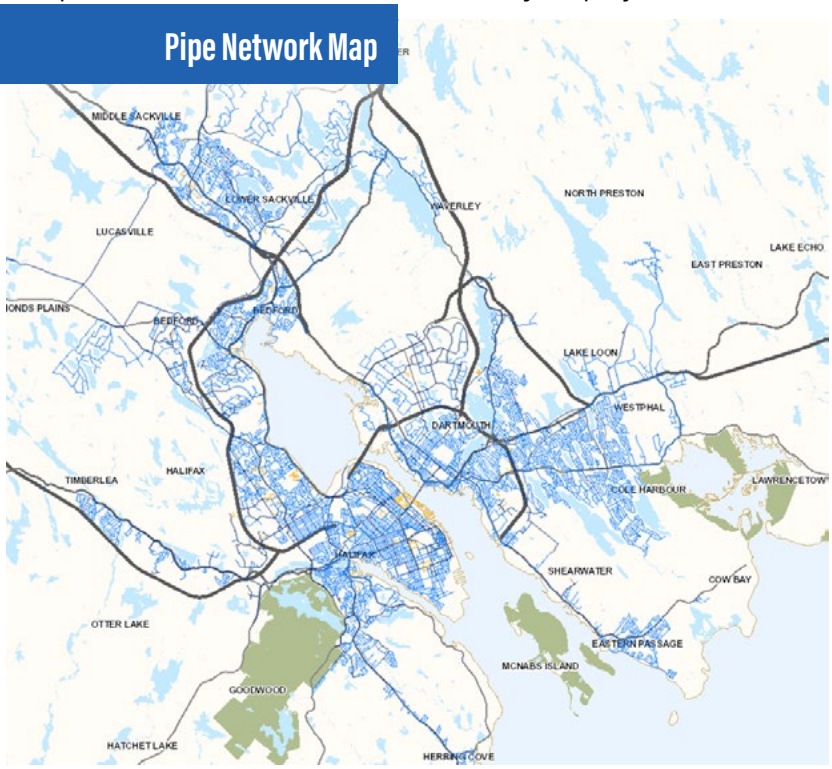
The Halifax Water capital program is also supported by the Computer Aided Design (CAD) services from the EI team. Key achievements in 2017/18 include:

- bringing the pipe network to more than 99% complete in GIS;
- hosting of the GIS and Cityworks server environments within Halifax Water;
- development of a Cityworks support model;
- growth in Web GIS capabilities and an approved Web GIS governance, and;
- key participants in IT Strategic Plan (beginning the development of a GIS roadmap).

Pipe Network Build

This project brought the pipe network for water, wastewater and stormwater to greater than 99% complete, the end result of a focused five-year project to build the full database for the entire pipe network. This year will see the completion of any minor remaining gaps in the system. A complete system network enables the ability to perform other geospatial related capabilities such as network tracing, hydraulic modelling and improved asset planning.

Pipe Network Map

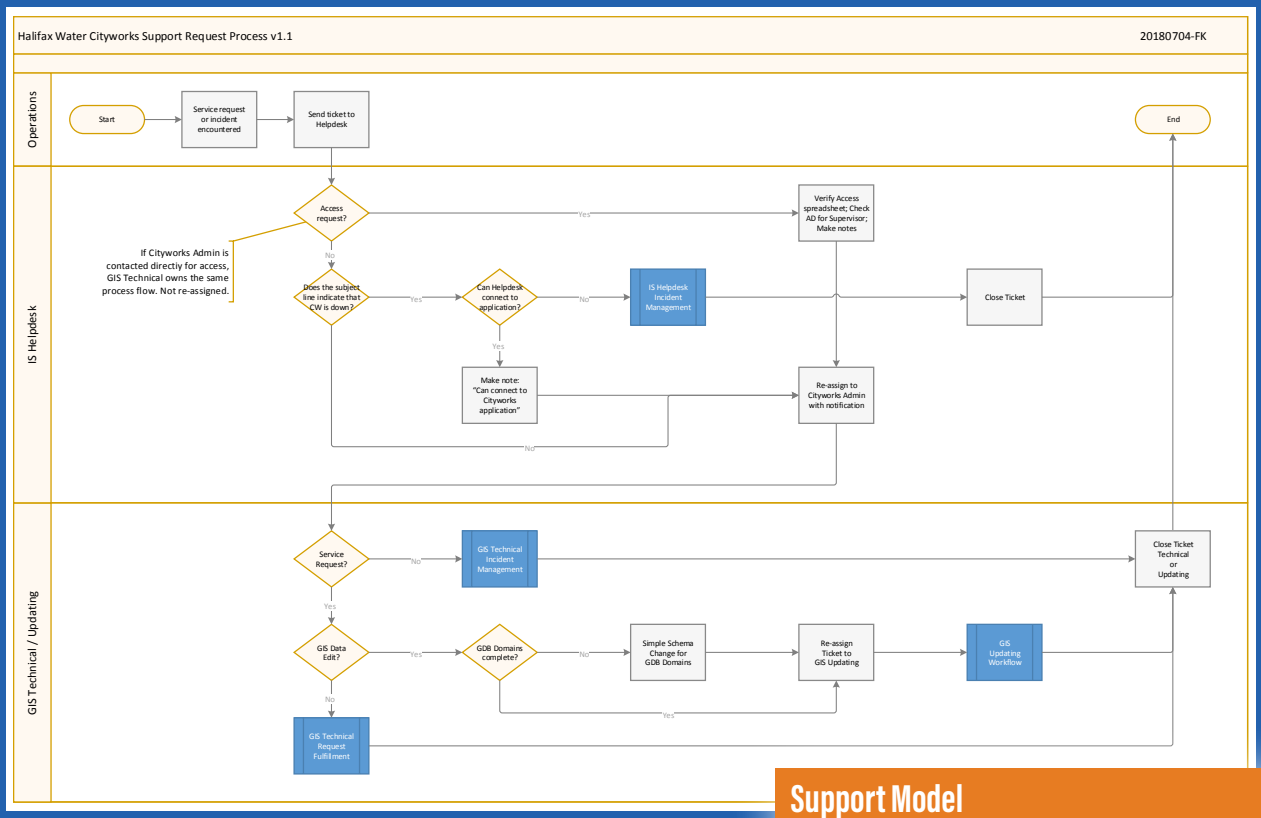


GIS/Cityworks Hosting

This project created a new home for our GIS and Cityworks servers, software, applications and databases allowing for greater control and a more agile environment when it comes to administration and management of our critical infrastructure applications. The project was completed in March of 2018 and saw the hosting of all GIS applications as well as the Cityworks application. The project also facilitated a migration from Oracle to SQL Server for our database environment as well as Active Directory integration with GIS applications. This project established not only a Production environment but also quality assurance, development, and training environments as well. A mechanism for two-way data sharing with Halifax municipality was also implemented.

Support Models

The Engineering Information Team took on the Tier 1 support for the Operational Maintenance Management application, Cityworks. Part of this transition included the development of a support model which involves the GIS workgroup and the IS workgroup jointly providing user and application support.



Support Model

Updating Workflows

New data maintenance workflows were developed for CCTV and zoom camera data. As well, workflows for the updating of facility data in the Cityworks work order system were implemented for the treatment plants.

Web GIS Growth

Web GIS mapping applications continued to grow within the organization both for internal business unit use and for use by our Communications Department when providing project specific information to the public. Examples of these include the Residential Meter Upgrade Application, which provides communication to customers about when the project would be targeting their neighbourhood. Another was the Northwest Arm Trunk Sewer Rehabilitation project where a public mapping application supported project communication to residents who were impacted by the project. These web applications and others can be viewed in the Public App Gallery. Web GIS governance was developed and approved for use in the 2017 year to ensure continued success in web application and map development.

Halifax Water Residential Meter
Web Mapping Application

Halifax Water Stormwater Service
Web Mapping Application

Halifax Water Lead Service Line Boundary
Web Mapping Application

Where Does My Wastewater Go?
Web Mapping Application

Where Does My Water Come From?
Web Mapping Application

Halifax Water AGOL App Gallery
Web Mapping Application

Halifax Water Source Water Protection Areas
Web Mapping Application

Halifax Water Bulk Fill
Web Mapping Application

Northwest Arm Trunk Sewer Rehabilitation
Web Mapping Application

Halifax Water Hydrant-Catchbasin Application
Web Mapping Application

Halifax Water Public App Gallery

Link: http://hwc.maps.arcgis.com/apps/MapAndAppGallery/index.html?appid=e204e61a338a4444b72167cf10a68491

REGULATORY COMPLIANCE

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.

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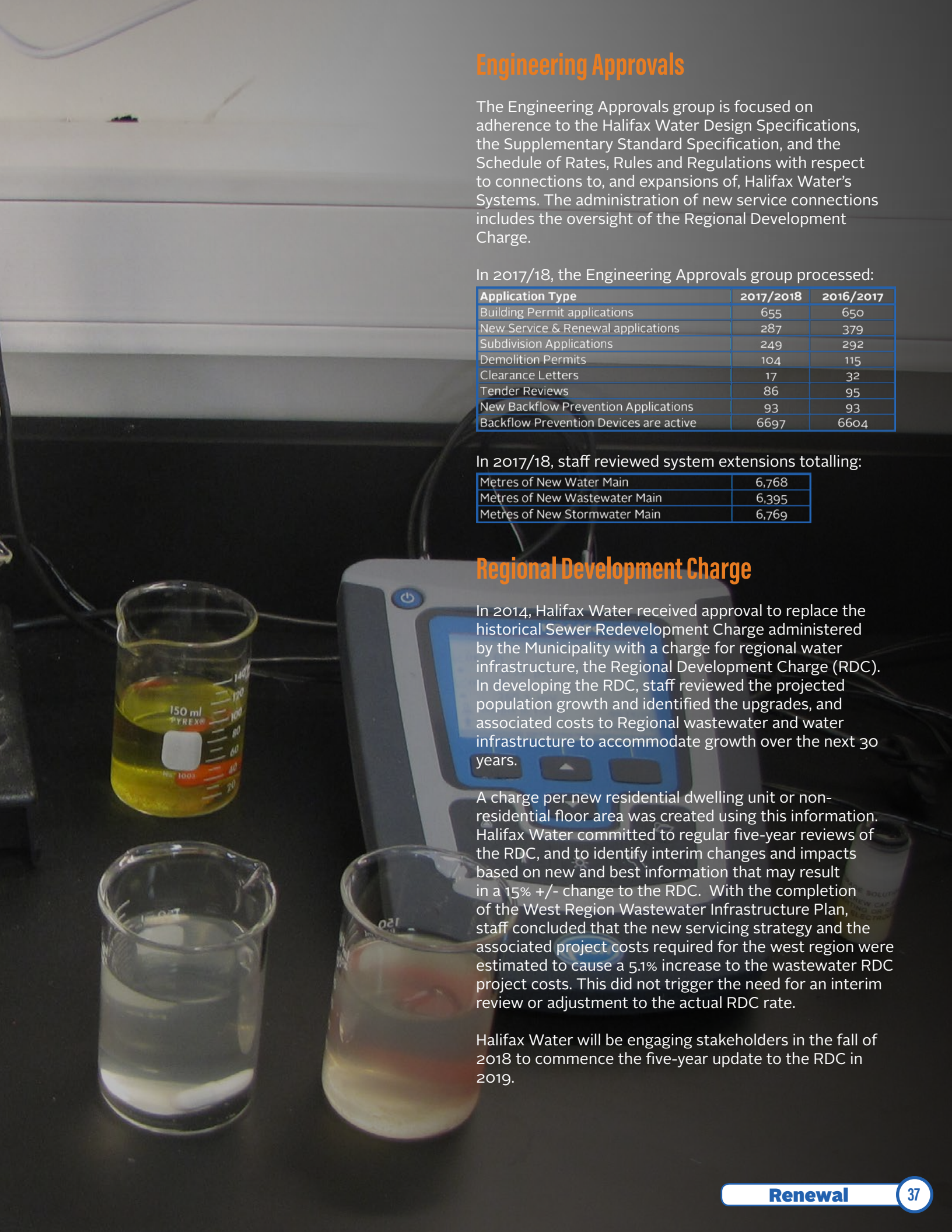


Engineering Approvals

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's Systems. The administration of new service connections includes the oversight of the Regional Development Charge.

In 2017/18, the Engineering Approvals group processed:

Application Type	2017/2018	2016/2017
Building Permit applications	655	650
New Service & Renewal applications	287	379
Subdivision Applications	249	292
Demolition Permits	104	115
Clearance Letters	17	32
Tender Reviews	86	95
New Backflow Prevention Applications	93	93
Backflow Prevention Devices are active	6697	6604

In 2017/18, staff reviewed system extensions totalling:

Metres of New Water Main	6,768
Metres of New Wastewater Main	6,395
Metres of New Stormwater Main	6,769

Regional Development Charge

In 2014, Halifax Water received approval to replace the historical Sewer Redevelopment Charge administered by the Municipality with a charge for regional water infrastructure, the Regional Development Charge (RDC). In developing the RDC, staff reviewed the projected population growth and identified the upgrades, and associated costs to Regional wastewater and water infrastructure to accommodate growth over the next 30 years.

A charge per new residential dwelling unit or non-residential floor area was created using this information. Halifax Water committed to regular five-year reviews of the RDC, and to identify interim changes and impacts based on new and best information that may result in a 15% +/- change to the RDC. With the completion of the West Region Wastewater Infrastructure Plan, staff concluded that the new servicing strategy and the associated project costs required for the west region were estimated to cause a 5.1% increase to the wastewater RDC project costs. This did not trigger the need for an interim review or adjustment to the actual RDC rate.

Halifax Water will be engaging stakeholders in the fall of 2018 to commence the five-year update to the RDC in 2019.

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, the environment, and create operational and compliance issues with Halifax Water infrastructure and treatment plants.

The disposal of so-called "flushable wipes", 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.

Rags clogging Wastewater System

Pollution Prevention is also responsible for regulating the resolution of situations where a private wastewater system was inadvertently connected to a stormwater system. Six of these wastewater to stormwater cross connections were resolved over the past year.

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

Smoke Test

Staff inspected over 100 single-family residential properties in Cow Bay, Crescent Avenue and Springfield Lake 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.

Manhole Overflowing

Seasonal Disinfection

Halifax Water's Operating Permits for Halifax, Dartmouth, Eastern Passage and Herring Cove Wastewater Treatment Facilities have been amended successfully to allow for a permanent Seasonal Disinfection program. As part of the treatment process, ultraviolet (UV) disinfection equipment will operated from May to October and be turned off from November to April (except for two weeks before the Polar Bear Swim on January 1). The UV lights at the end of the wastewater treatment process are turned off in the winter months when recreational activities and human contact are reduced.

As a result of these changes, staff are

UV Light Module Removed for Cleaning

able to more safely and efficiently clean and replace the UV lamps within the wastewater facilities. In addition, there were significant cost savings and reductions in greenhouse gases with no noticeable impact in the harbour quality as a result of the UV lamps being turned off. As well, annual savings of $166,000 were realized, which equates to 1,739,000 kWh of electricity, and 1,218 tonnes of greenhouse gases. This is equivalent to getting 265 vehicles off the road.

Environmental Management Systems (EMS)

An Environmental Management System (EMS) is a system of procedures, records, and processes to manage environmental issues and assist with regulatory compliance. It also makes day to day operations more sustainable and engages employees in these operational activities. The EMS program can be audited against ISO 14001 standards, and if found to comply, receives a certification through ISO. The ISO standard has recently changed from the 2004 version to a 2015 version with a greater focus placed on organizational leadership and identification of risks and the associated influences, both internal and external to an organization. Staff have completed the process to adjust the existing documents for the Pockwock, Lake Major and Bennery Water Supply Plants and the Herring Cove Wastewater Treatment Facility for an internal audit in April 2018 and an external audit in June 2018. In the coming year, staff will start the process to obtain certification for the Dartmouth Wastewater Treatment Facility.

Wastewater Treatment Facility Compliance

Wastewater Treatment Facilities (WWTFs) in Nova Scotia are regulated by Nova Scotia Environment. They set effluent discharge limits for all wastewater facilities. Those limits define maximum concentrations of parameters, such as; Carbonaceous Biochemical Oxygen Demand (CBOD), a measure of the amount of material in water that will consume oxygen as it decomposes; Total Suspended Solids (TSS), a measure of the amount of particulate matter in the water; and Fecal Coliform, bacteria associated with human waste. For some facilities, parameters such as nutrients (nitrogen and phosphorus that cause excess growth of algae and plants) or pH, a measure of acidity, are also regulated.

Herring Cove WWTF ISO 14001 Certified

Wastewater Treatment Facility Compliance Continued...

Halifax Water oversees five large WWTFs and nine smaller, community-based WWTFs. Since becoming responsible for these facilities in 2007, Halifax Water has worked to optimize and upgrade treatment processes. A major upgrade to the Aerotech WWTF is nearing completion, to improve capacity and performance.

Halifax Water has undertaken 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 five large facilities are measured on monthly averages. There has been a significant improvement in the compliance at these facilities with nine months where all five were fully compliant. Two of these facilities, Herring Cove and Eastern Passage, were fully compliant for the entire year. Halifax and Dartmouth WWTFs both had only one occurrence of non-compliance, and Mill Cove had two throughout the entire year. There was a noticeable improvement with the smaller facilities in 2017/18. In the third quarter, all facilities were compliant except for one parameter at the Aerotech WWTF. Of the nine facilities, three, Springfield, Steeves and Frame were fully compliant for the entire year.

Aerotech WWTF

Wastewater Treatment Facility Compliance Summary

Cumulative Performance - April 2017 to March 2018

WWTF	$CBOD_5$	TSS	E. coli	Phosphorus		Ammonia		pH	Dissolved Oxygen	Total Chlorine	Toxicity
				S	W	S	W				
Halifax	30	25	1958	N/A		N/A		7	N/A	N/A	Toxic
Herring Cove	23	21	404	N/A		N/A		7	N/A	N/A	Non-Toxic
Dartmouth	32	25	1561	N/A		N/A		7	N/A	N/A	Non-Toxic
Eastern Passage	6	7	55	N/A		N/A		7	N/A	N/A	Non-Toxic
Mill Cove	13	19	43	N/A		N/A		7	N/A	N/A	Non-Toxic
AeroTech	5	8	62	0.6		2.3	10.0	7	8.4	N/A	Non-Toxic
Frame	4	1	10	N/A		N/A		7	N/A	N/A	N/A
Lakeside-Timberlea	5	21	13	2	2	2	5	7	7	0.10	Non-Toxic
Lockview-MacPherson	4	6	21	0.4		4		7.1	N/A	N/A	N/A
Middle Musquodoboit	7	16	481	N/A		N/A		8	N/A	N/A	N/A
North Preston	5	10	11	0.5		2.1		7	N/A	N/A	N/A
Springfield	5	7	16	N/A		N/A		7	N/A	N/A	Non-Toxic
Steeves (Wellington)	5	5	33	0.17		0.05		7.0	N/A	N/A	N/A
Uplands Park	10	9	516	N/A		N/A		7	N/A	N/A	N/A
Weighted Average	11	13	370	N/A		N/A		7.0	8	0.10	

LEGEND	
	Specific parameter limit achieved
	Specific parameter limit not achieved

Definitions:

CBOD5: 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

Water Quality

Drinking Water Compliance Summary Total Coliform Sample Results - April 2017 to March 2018		
Systems	**% Absent**	**# of Samples**
HFX/Pockwock West	100.0%	833
HFX/Pockwock Central	99.8%	521
Lake Major	100.0%	1195
Bennery	100.0%	156
Five Islands	100.0%	104
Silver Sands	100.0%	106
Middle Musquodoboit	100.0%	104
Collins Park	100.0%	103
Miller Lake	100.0%	103
Bomont	100.0%	106
Totals		3331
Absent		3330
Present		1
All Sites - % Absent		99.97%

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 these areas.

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

The Municipal Auditor General completed an audit in 2017 of our water systems "Halifax Water – Management of Drinking Water Safety." The audit was favourable with nine recommendations that either have been addressed or are in the process of implementation.

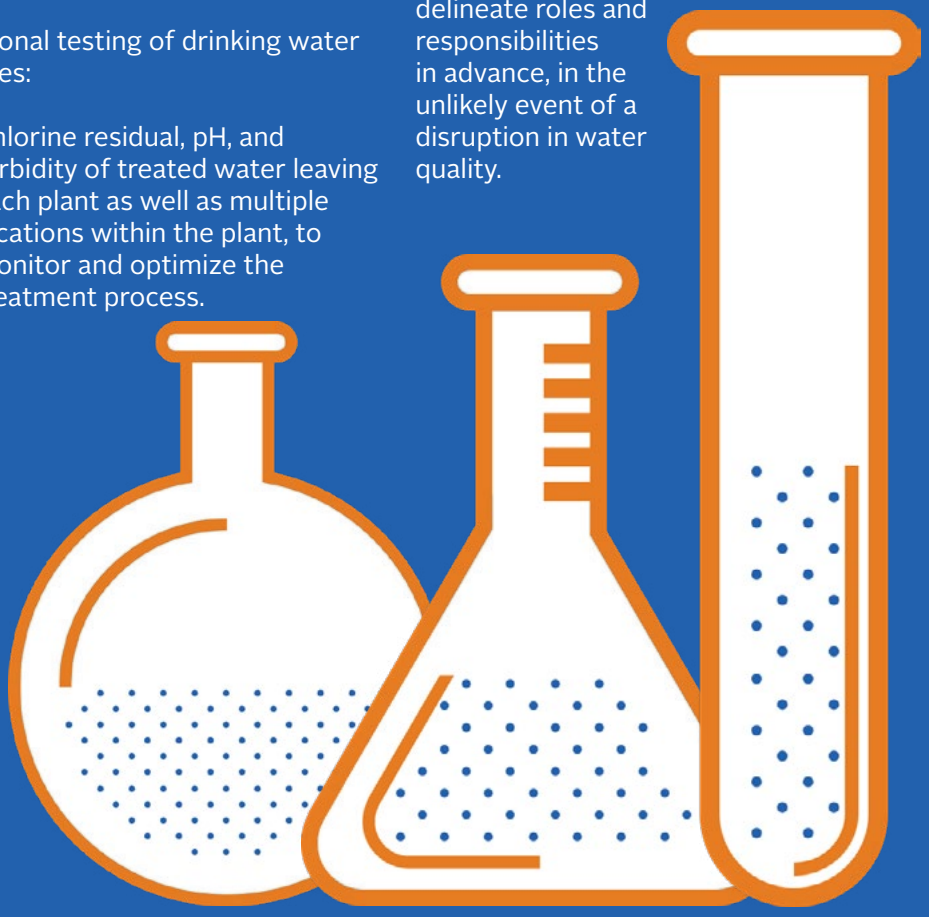
Halifax Water undertakes a comprehensive water testing program. Bacteriological testing is done weekly at 51 locations within the urban core, and at each of the small systems.

Approximately 3,600 tests for total coliform bacteria are conducted each year. Results of 99.9% of samples with bacteria absent are consistently achieved, as shown above.

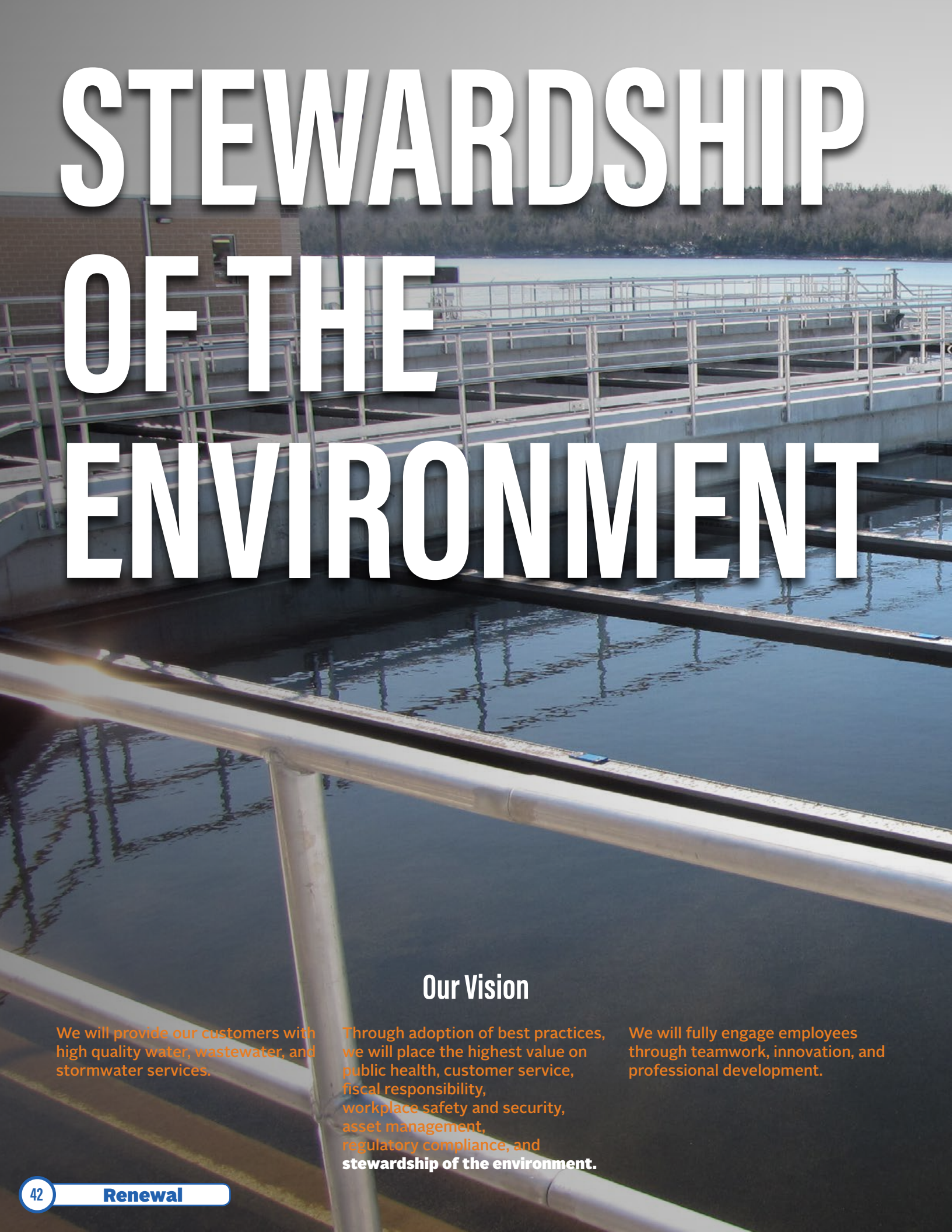
Additional testing of drinking water includes:

- Chlorine residual, pH, and turbidity of treated water leaving each plant as well as multiple locations within the plant, to monitor and optimize the treatment process.
- Quarterly sampling of treated water at 2-3 locations within the distribution system for approximately 40 chemical parameters.
- Quarterly sampling of raw lake water and water from contributing streams for approximately 40 chemical parameters.
- Bi-annual sampling of Lake Major and Pockwock Lake raw and treated water for all parameters in the Guidelines for Canadian Drinking Water Quality (Health Canada).
- Bi-annual testing and sampling for giardia and cryptosporidium for treated and raw water for all surface water systems.

Water test results are reported to Nova Scotia Environment and the Nova Scotia Medical Officer of Health on a regular basis. Protocols have been established between Halifax Water, and the provincial Health and Environment departments, to clearly delineate roles and responsibilities in advance, in the unlikely event of a disruption in water quality.



STEWARDSHIP OF THE ENVIRONMENT



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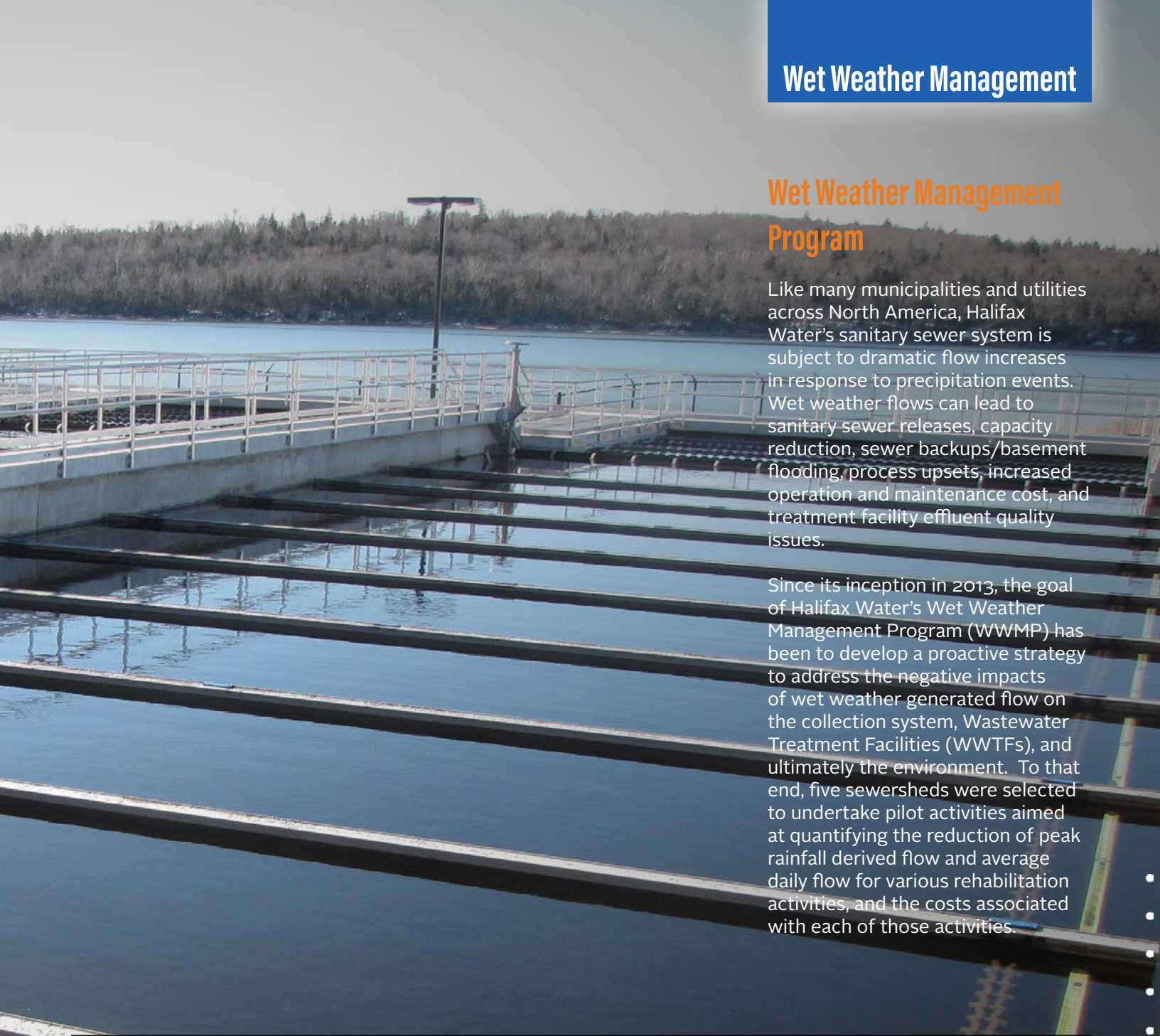


Wet Weather Management Program

Like many municipalities and utilities across North America, Halifax Water's sanitary sewer system is subject to dramatic flow increases in response to precipitation events. Wet weather flows can lead to sanitary sewer releases, capacity reduction, sewer backups/basement flooding, process upsets, increased operation and maintenance cost, and treatment facility effluent quality issues.

Since its inception in 2013, the goal of Halifax Water's Wet Weather Management Program (WWMP) has been to develop a proactive strategy to address the negative impacts of wet weather generated flow on the collection system, Wastewater Treatment Facilities (WWTFs), and ultimately the environment. To that end, five sewersheds were selected to undertake pilot activities aimed at quantifying the reduction of peak rainfall derived flow and average daily flow for various rehabilitation activities, and the costs associated with each of those activities.

WWMP Pilot Project Summary

	Rehabilitation Activity					
Sewershed	Mainline Lining	Lateral Lining	Manhole Lining	Private Side Inspection	Peak Flow Reduction (l/s)	Average Daily Flow Reduction (%)
Crescent Avenue (MH 182)	350 m	247 m	1	24	74	33
Crescent Avenue (MH 174)	202 m	166 m	4	13	92	80
Stuart Harris	1000 m	1390 m	7	128	16	20
Leiblin Pump Station	2200 m	1090 m	TBD	1	23	15
North Preston	655 m	2272 m	TBD	TBD	24	2

Completed
Planned
To Be Determined

Fairview, Clayton Park, Bridgeview: WWMP Project Summary

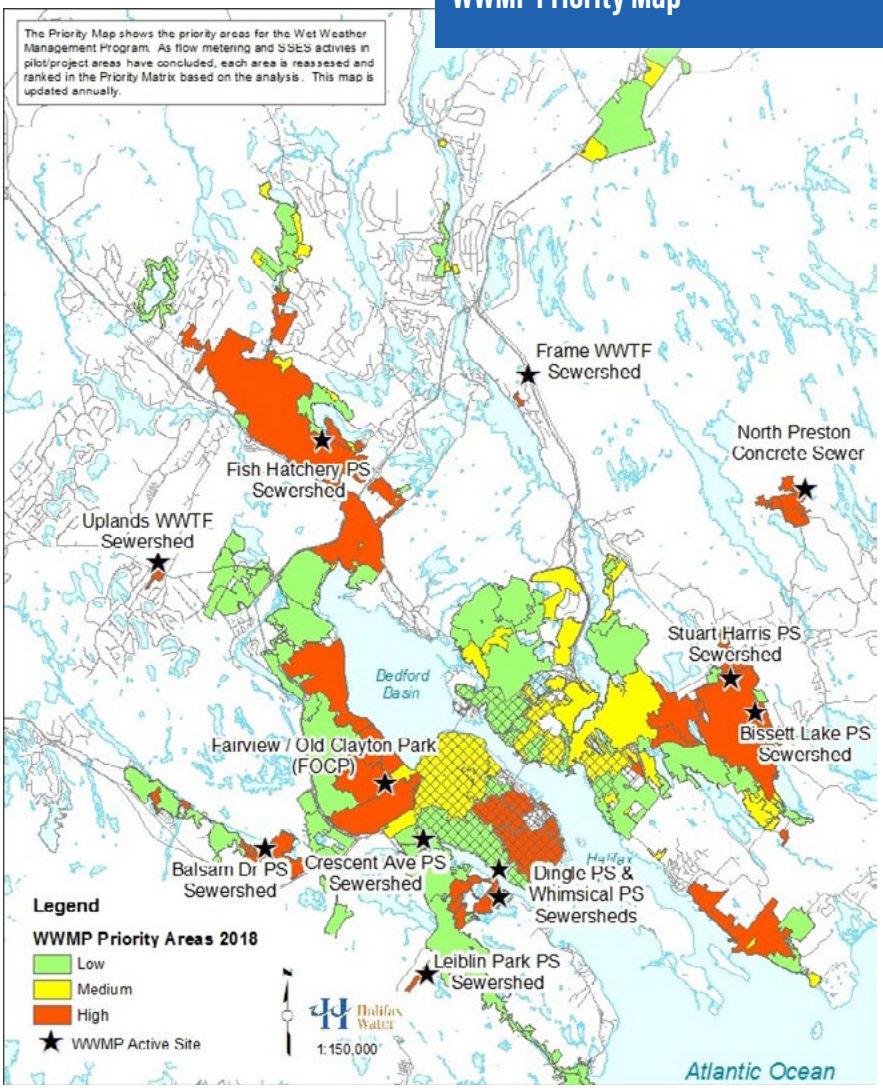
The analysis of flow monitoring data, undertaken as part of the West Region Wastewater Infrastructure Plan identified the potential for a significant reduction in Rainfall Derived Inflow and Infiltration (RDII) in the Fairview, Old Clayton Park and Bridgeview areas. With the goal of reducing peak flows by approximately 200 L/s, a multi-year I&I Reduction Program was initiated in 2017 with overall project planning, sewer evaluation survey and engineering design activities occurring in the 2017/18 year. For the 2018/19 year, 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 the 2019/20 year, Phase 2 of the lining project will be completed in the Old Clayton Park area from the candidate list, seeing approximately 9.5 km of CIPP lining accomplished.

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 for the project area and assess the effectiveness of the asset renewal during all phases of the project.

The WWMP team continues to identify areas for future study and I&I reduction activities.

WWMP Priority Map



The above map identifies the current priority areas for the Wet Weather Management Program and the location of current activities.

Enhanced Proactive Maintenance at Wastewater Treatment Facilities

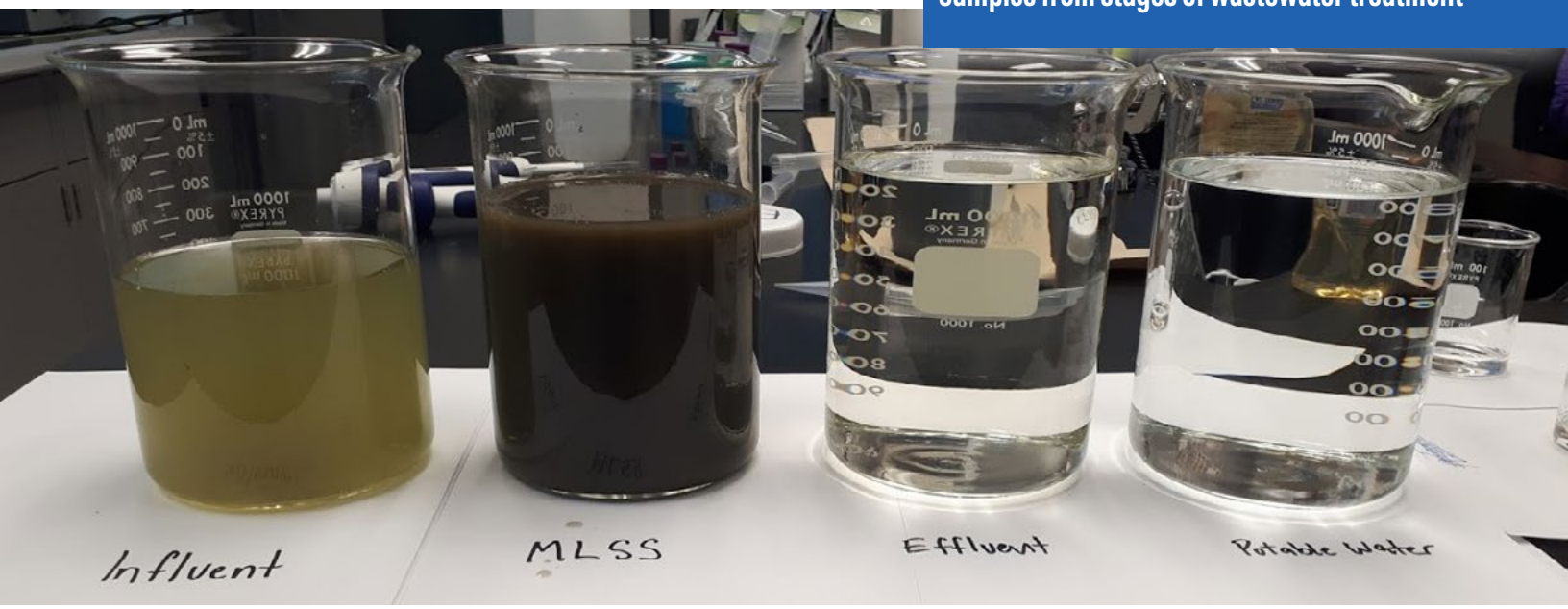
Odour Control System

All WWTFs are maintained proactively throughout the year to provide uninterrupted service. These maintenance efforts are often coupled with initiatives to improve resilience, energy efficiency, and treatment process optimization. These efforts were supplemented by the implementation of a Computerized Maintenance Management System (CMMS) in the Halifax WWTF in 2017-18. All other WWTFs are planned to implement CMMS in 2018-19. The shutdown of the UV systems during winter months, where permitted, have provided an excellent opportunity to service these systems while reducing overall energy required to operate them. The odour control systems at the Harbour Solutions and Mill Cove WWTFs received special attention to be ready for Summer of 2018 considering the extended dry periods and warmer than normal temperatures during the Summer of 2017. The system at the Mill Cove facility was upgraded to a larger capacity and a high-efficiency system. The odour control systems at the Harbour Solutions facilities had the carbon replaced, system structure strengthened, and system balanced for optimum performance.

The Frame Subdivision WWTF was upgraded utilizing membrane technology. The design, construction, and commissioning were all completed by Halifax Water staff exhibiting great collaboration between various departments. The innovative upgrade refurbished the existing tankage and other assets to deliver a state of the art facility with significant cost savings when compared to building a new facility. This facility produces consistent and excellent effluent quality better than NSE permit requirements. This small footprint technology is easily scalable to larger facilities and will serve as a great learning experience for Halifax Water staff for future opportunities.

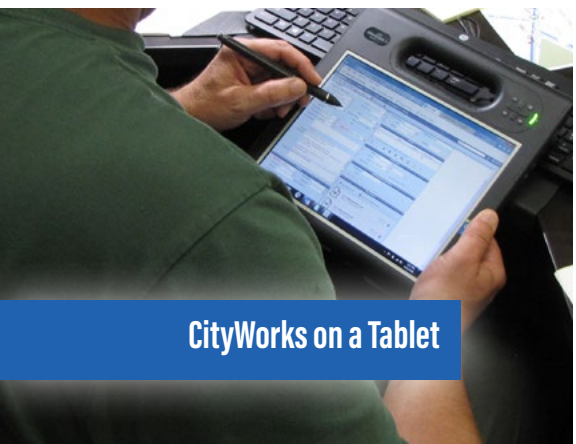
Frame Subdivision WWTF

Samples from stages of wastewater treatment



Computerized Maintenance Management System (CMMS)

Halifax Water operates and maintains 1,549 km of water mains, 15,526 water main valves, 8,350 fire hydrants, 20 pumping stations, and 142 pressure control/flow meter chambers and other related infrastructure such as water services and sprinkler services to provide water services to its customers.



CityWorks on a Tablet

Halifax Water also operates and maintains over 2,500 km of pipes, 166 pump stations, 500 km of ditches and associated infrastructure such as laterals, manholes, catch basins, culverts and valve chambers etc., to provide wastewater and stormwater services to its customers.

Halifax Water began exploring a CMMS in 2014 with the municipality and began implementing the system in April of 2016 in the Central Region, and June of 2016 in the East and West Regions. The system enables Halifax Water staff to monitor, track, and record all service requests effectively and in a timely manner. Staff have real-time access to Halifax Water data through mobile tablet computers that enable them to perform their job safely and efficiently thus enhancing customer experience through timely resolution of customer inquiries.

This enhanced monitoring and tracking ensures that Halifax Water is meeting its service standards and maintaining its assets in a proactive manner in accordance with industry standards. The system is integrated with Halifax Water's GIS, and other systems, to provide consistent up-to-date information flowing seamlessly to field crews, supervisors, dispatchers, and management. Halifax Water staff were fully trained in the system and continue to make improvements to understand its functionality and use it for the benefit of our customers. This continuous improvement and integration process is a journey that will continue over the next several years.

Sanitary Servicing for the USS Dwight D. Eisenhower

Over a period of seven days during the summer of 2017, Halifax Water teamed up with Dominion Diving Ltd. to provide a very important service to the American aircraft carrier, the USS Dwight D. Eisenhower.

The USS Dwight D. Eisenhower was docked in Halifax Harbour to participate in the Canada 150 celebrations and requested assistance in dealing with its onboard wastewater. Dominion Diving Ltd. was contracted by the aircraft carrier to collect and transport approximately 3 million liters of grey and black water to Halifax Water's Dartmouth Wastewater Treatment Facility (DWWTF), via the "Honey Barge". Once the barge reached shore adjacent to the DWWTF, the wastewater was pumped through a rigid hose, which had been temporarily placed around the perimeter of the DWWTF parking lot. The wastewater then discharged directly to the DWWTF for treatment. Sampling was conducted on a daily basis to ensure that there were no adverse effects to the treatment process at the Dartmouth facility. The DWWTF was closely monitored to ensure no odour and noise issues arose from this operation. This arrangement is an excellent example of Halifax Water working together with industry to protect our environment and provide essential services to users of Halifax Harbour.

USS Dwight D. Eisenhower

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.

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Safety Audits

With a busy 2017/18 Capital Project season, Halifax Water started a new program where a third-party safety auditor was engaged to conduct random field safety audits at our many project sites. This initiative was well received by both our project management teams and our contractors. It helped raise awareness of everyone's responsibilities to ensure every person went home safely at the end of the day.

Mill Cove WWTF Outfall Replacement Safety Audit Photo

Fall River Water Service Extension Safety Audit

Safety Training

We continue to concentrate on commercial vehicle safety by training all commercial vehicle operators on pre-trip commercial vehicle inspection, hours of service and load securement. Our internal audits have identified significant improvements in overall understanding of the commercial vehicle procedures that ensure early identification of vehicle problems and defects; to prevent the operation of vehicles with conditions that are likely to cause or contribute to a collision or vehicle breakdown; and ensures compliance with the commercial vehicle inspection regulations.

Incident Command System (ICS)

To ensure safe and efficient response to water, wastewater, and stormwater incidents, Halifax Water training exercises are crucial. Staff continue to exercise emergency response plans and training by participating in monthly, tabletop exercises on a rotational basis, with external agencies using the Incident Command System (ICS). Operational staff use ICS when responding to system disruptions.

ICS Exercise

Preventing Workplace Injuries Program - WCB

In November 2015, Halifax Water engaged in the Preventing Workplace Injury (PWI) Program with WCB. An initial survey was conducted, with 247 employees participating. The survey was designed to gauge individual's perceptions of the current safety culture at Halifax Water and the awareness and understanding of safety policies and practices. After the completion of the survey, a committee known as the Team of Doers was established in February of 2016 with representatives across Halifax Water.

The Team of Doers met monthly for 18 months to review the outcomes of the survey and develop strategies to enhance the safety culture and awareness throughout Halifax Water. One of the first objectives of the team was to establish a Vision to provide direction on their activities:

Working together for an injury free and healthy workplace through empowering employees for positive change, so we will all return home safely.

The Team proceeded to review the results of the November 2015 survey to get a sense of the issues and perceptions surrounding Halifax Water's safety culture. Some of the common themes related to communications of safety issues, lack of formalized follow-ups and understanding of safety and the related human resource policies. After implementing some new initiatives, the WCB representative administered the survey again in November 2017 to see if our efforts resulted in a change in the Safety Culture at Halifax Water. We are pleased to announce, they did! Based on the responses provided by the 265 participants we saw improvements in 29 of the 32 themes included. Staff will continue to implement and maintain some of the initiatives to continue to grow the awareness and enhance the safety culture at Halifax Water.

CEO of WCB, Stewart MacLean (centre) presenting the Preventing Workplace Injuries Award to Halifax Water Board Chair, Ray Ritcey (left), and General Manager, Carl Yates (right).

In recognition of improved safety, WCB presented Halifax Water with the Preventing Workplace Injuries Award.

Thank you to our employees for continuing to work safely. You, your families, friends, and co-workers are counting on it.

MOTIVATED & SATISFIED EMPLOYEES

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.

Halifax Water's Greatest Assets

Halifax Water's greatest assets are the people that are behind the operation who continue to provide world-class service for our customers and our environment on a daily basis. Halifax Water recognizes that safe and productive work is directly related to the health and well-being of all employees. Halifax Water is therefore committed to providing a work environment that positively supports employees' mental and physical health.

Halifax Water's Greatest Assets Continued...

When an employee is unable to work, due to a variety of reasons, this could negatively impact other areas of that employee's life such as; finances, mental well-being, physical well-being, etc. These additional impacts are known to increase the number of days an employee is off making it more difficult for the employee to return to work. Recognizing this, and the importance of providing meaningful work to employees whose abilities have been compromised, a "Stay at Work" policy was developed and implemented. Where possible, employees are provided with alternate work within their capabilities. This option significantly reduces the number of days an employee is off work and enables them to return to their current duties more quickly.

A Health and Wellness Committee was formed with a mandate to increase the health and well-being of all employees and their families. Employees took part in a Health Risk assessment in Fall of 2017, which produced a report of aggregate results. In conjunction with this data, the Health and Wellness team provided programs and information sessions that focused on awareness and prevention of some of the risk areas identified. This will continue to be a strong focus for Halifax Water. Future initiatives include training Supervisors and Managers to recognize and support employees mental health and wellness.

A civil and respectful workplace also contributes to employees health and wellbeing. A Civility and Respect in the Workplace working group was formed to focus on improving the way employees work and communicate with each other. Some outcomes will be early interventions, increased communication and awareness, and clear expectations.

Service Award Banquet

At the 2017 Service Award Banquet the following awards were presented:

30 Year Award

Corporate Services
Heather Singer

Engineering & Information Services
Norma Belliveau

Wastewater & Stormwater Services
Graham Downey
Danny MacMaster
Greg Stewart

Water Services
Todd Masters
Rob Seguin

25 Year Award

Engineering & Information Services
Harold MacNeil

Regulatory Services
Pat Bellemare
Shawn MacDonald

Wastewater & Stormwater Services
Stephen Murphy

20 Year Award

Corporate Services
Rochelle Bellemare
Denise MacDonald
Maria MacKinnon

Wastewater & Stormwater Services
George Bent
Sheldon Parsons
Shawn Taylor

Water Services
Reid Kaiser
Paul Sutherland

10 Year Award

Corporate Services
Kimberley Peterson
Christine Westhaver

Engineering & Information Services
Jaclyn Chezenko
Alan Ghothani
Daniel Kennie
Roger Levesque

Regulatory Services
Chantel Parkin

Wastewater & Stormwater Services
Colette Clark
Neil Grady
Laurena MacDonald

Water Services
Troy Blackmore
John Eisnor
Mark Feener
John Russell
Terry Vaters

Carl Yates presenting 25 Year Award to Harold MacNeil

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. The 2017 award was presented to Mark McGonnell for his continued commitment and high-level of service provided to Halifax Water's customers.

Carl Yates presenting Mark McGonnell with the Carolyn Bruce Customer Service Excellence Award

Fundraising Initiatives at Halifax Water

Supporting the community we work in is important to Halifax Water and fundraising is an important part of that support. In 2017, Halifax Water employees raised $4,237.55 for United Way Halifax through various fundraising events.

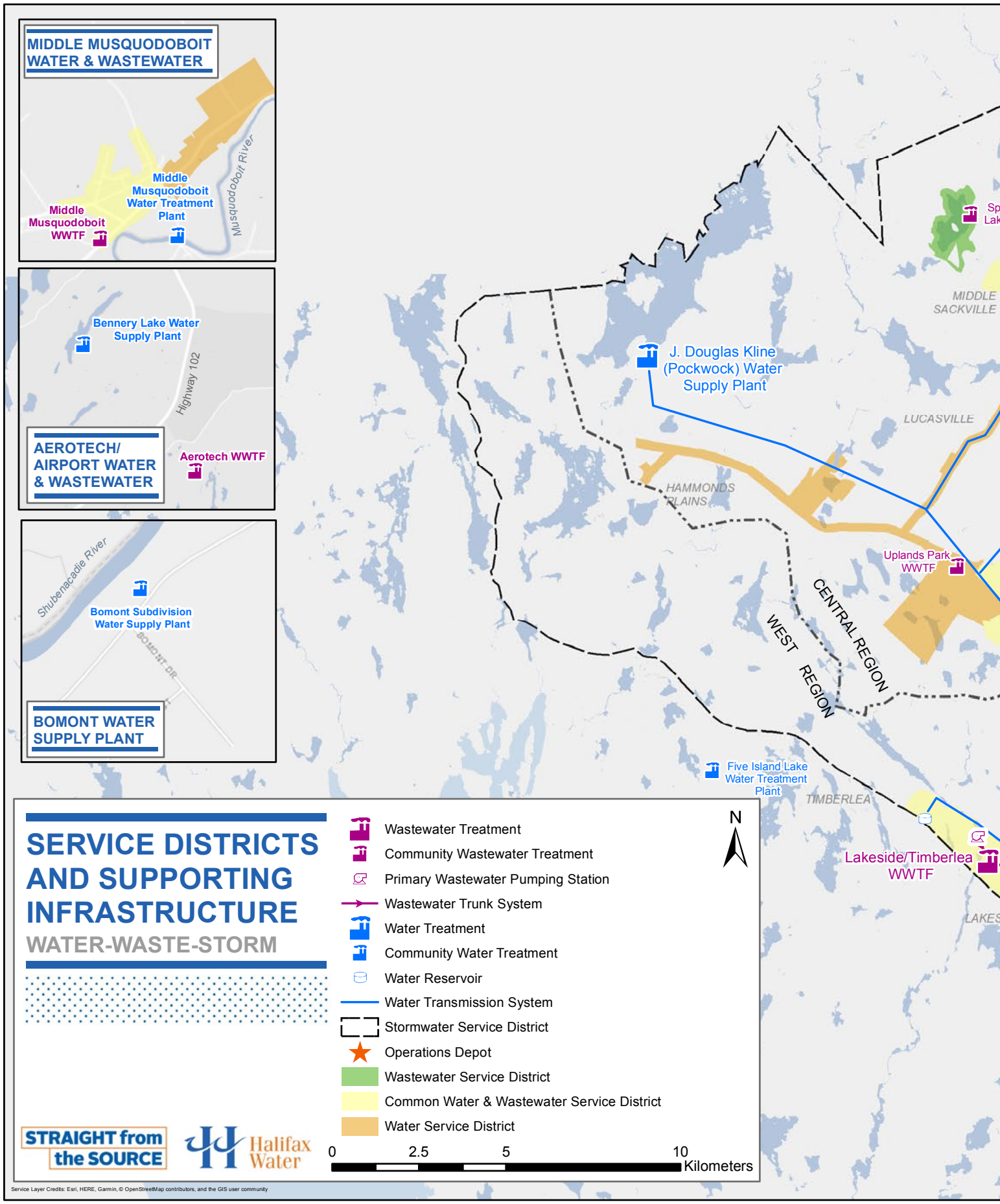
The Halifax Water/Salvation Army H2O (Help to others) raised a total of $2,835.00 to assist customers who truly need help with their water/wastewater/stormwater bill. This internal staff fundraising is in addition to the $25,000.00 Halifax Water provides in funding. Halifax Water also matches funds donated by Halifax Water employees.

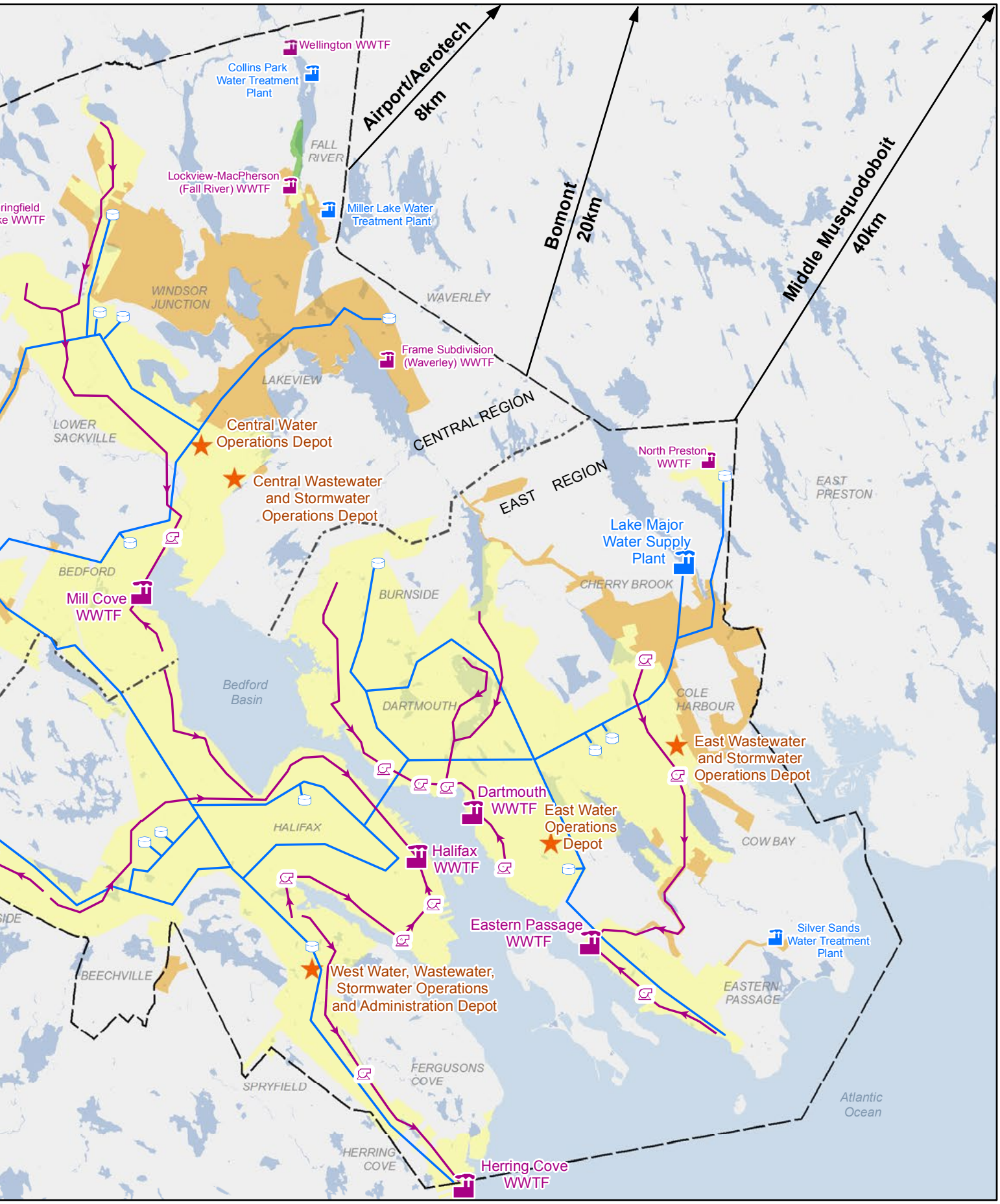
Halifax Water Employees also donated $8,542 toward Water For People to support the digging of wells to provide clean drinking water in nine different countries for 4 million people.

The Christmas Families Fundraising initiatives raised $845.00 for Carolyn's Angel Tree program through the Salvation Army, and employees donated gifts for 75 children in Halifax Regional Municipality. The funds raised also assisted with providing Christmas meals to those Halifax residents in need through Souls Harbour Rescue Mission.

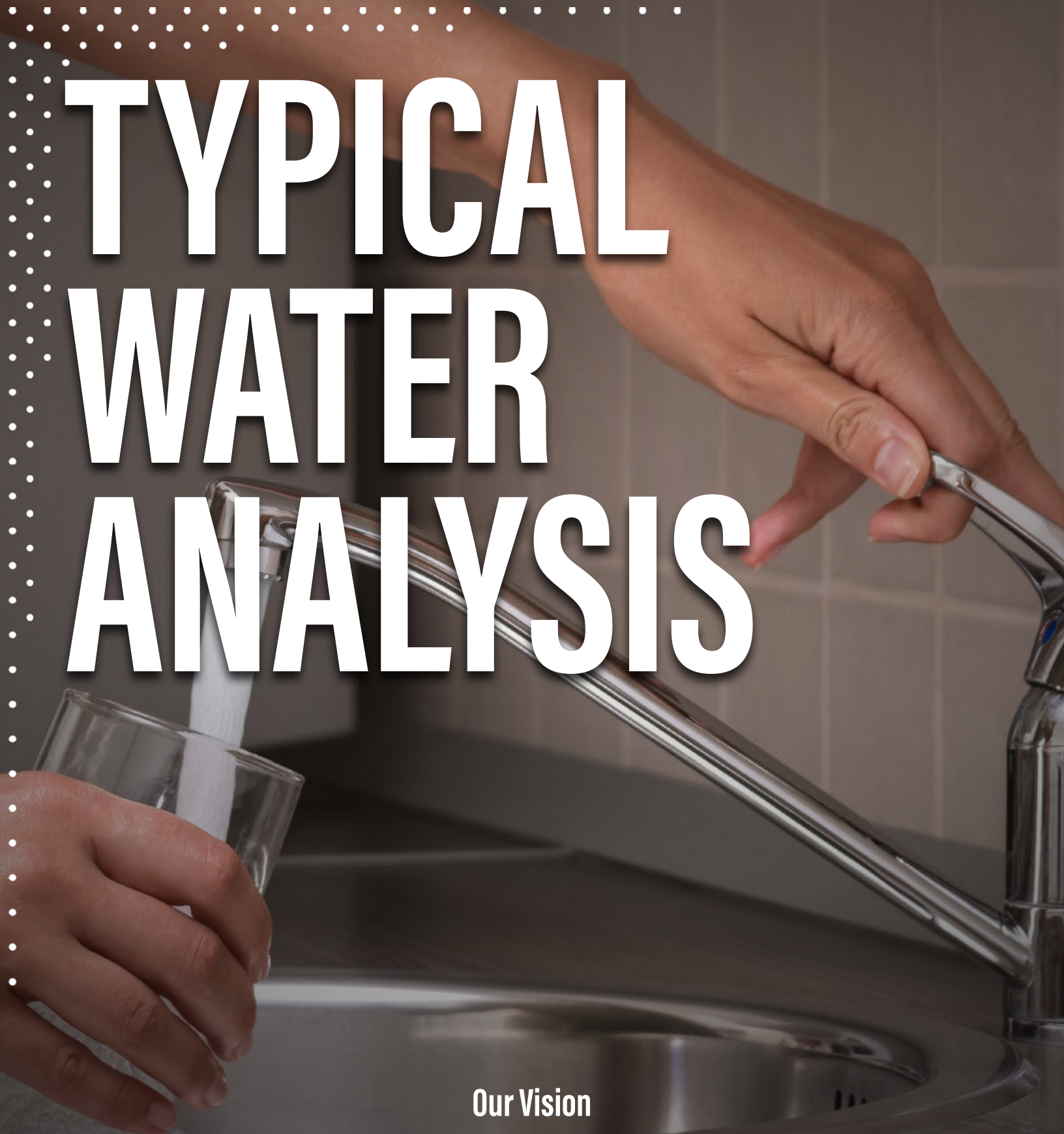
Halifax Water employees also fundraised in support of Bryony House, Feed NS, Hope Cottage, the Bluenose Marathon charities.

Christmas Families Gift Donation


MIDDLE MUSQUODOBOIT WATER & WASTEWATER
Middle Musquodoboit Water Treatment Plant
Middle Musquodoboit WWTF
Musquodoboit River
Bennery Lake Water Supply Plant
Highway 102
AEROTECH/ AIRPORT WATER & WASTEWATER
Aerotech WWTF
Shubenacadie River
Bomont Subdivision Water Supply Plant
BOMONT DR
BOMONT WATER SUPPLY PLANT
J. Douglas Kline (Pockwock) Water Supply Plant
MIDDLE SACKVILLE
LUCASVILLE
HAMMONDS PLAINS
Uplands Park WWTF
CENTRAL REGION
WEST REGION
Five Island Lake Water Treatment Plant
TIMBERLEA
Lakeside/Timberlea WWTF
LAKES
SERVICE DISTRICTS AND SUPPORTING INFRASTRUCTURE
WATER-WASTE-STORM
Wastewater Treatment
Community Wastewater Treatment
Primary Wastewater Pumping Station
Wastewater Trunk System
Water Treatment
Community Water Treatment
Water Reservoir
Water Transmission System
Stormwater Service District
Operations Depot
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: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community


Wellington WWTF
Collins Park Water Treatment Plant
Airport/Aerotech 8km
Bomont 20km
Middle Musquodoboit 40km
FALL RIVER
Lockview-MacPherson (Fall River) WWTF
Miller Lake Water Treatment Plant
WINDSOR JUNCTION
WAVERLEY
Frame Subdivision (Waverley) WWTF
LAKEVIEW
LOWER SACKVILLE
Central Water Operations Depot
CENTRAL REGION
EAST REGION
North Preston WWTF
EAST PRESTON
Central Wastewater and Stormwater Operations Depot
Lake Major Water Supply Plant
BEDFORD
Mill Cove WWTF
BURNSIDE
CHERRY BROOK
Bedford Basin
DARTMOUTH
COLE HARBOUR
East Wastewater and Stormwater Operations Depot
Dartmouth WWTF
East Water Operations Depot
HALIFAX
Halifax WWTF
COW BAY
Eastern Passage WWTF
Silver Sands Water Treatment Plant
BEECHVILLE
West Water, Wastewater, Stormwater Operations and Administration Depot
EASTERN PASSAGE
FERGUSONS COVE
SPRYFIELD
Atlantic Ocean
HERRING COVE
Herring Cove WWTF

TYPICAL WATER ANALYSIS



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.

TYPICAL ANALYSIS OF POCKWOCK LAKE & LAKE MAJOR WATER

2017 - 2018

(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 $CaCO_3$)	<1.0	21.5	<1.0	27.0	-	-
Aluminum	0.108	0.108	0.198	0.016	-	*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	1.00	3.8	0.99	16.0	-	-
Chloride	7.0	8.5	6.1	7.7	-	≤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)	14.0	<5.0	35.3	<5.0	-	≤15.0
Conductivity (µS/cm)	34.0	84.0	31.0	140.0	-	-
Copper (Total)	0.052	<0.002	0.075	<0.002	-	≤1.0
Fluoride	<0.10	0.63	<0.10	0.58	1.5	0.7
Hardness (as $CaCO_3$)	4.3	11.3	4.0	42.0	-	-
Hardness (as $CaCO_3$) (Grains/IG)	0.30	0.8	0.28	2.96	-	-
HAA5 (avg.)	-	0.040	-	0.044	0.080	-
Iron (Total)	<0.057	<0.050	0.107	<0.050	-	<0.3
Langelier Index @ 4°C	-4.5	-2.47	-5.40	-1.67	-	-
Langelier Index @ 20°C	-4.1	-2.22	-4.40	-1.42	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	10.0	-
Magnesium	0.41	0.40	0.37	0.38	-	-
Manganese (Total)	0.023	0.014	0.048	0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	<0.055	0.059	<0.050	<0.055	10.0	-
pH (pH Units)	6.20	7.3	6.00	7.5	-	7.0 - 10.5
Potassium	0.25	0.31	0.27	0.27	-	-
Sodium	4.4	13.7	3.9	10.7	-	≤200
Solids (Total Dissolved)	30.0	46.5	19.7	83.0	-	≤500
Sulphate	2.9	7.5	2.3	28.3	-	≤500
Turbidity (NTU)	0.30	<0.08	0.27	<0.04	**0.2/1.0	≤5
Total Organic Carbon (TOC)	3.0	1.7	4.7	1.7	-	-
THM's (avg.)	-	0.060	-	0.061	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.093	<0.005	0.09	-	≤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	-

*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. **0.2/1.0 means the plant must produce water with turbidity of <0.2 NTU 95% of the time and <1.0 NTU 100%

TYPICAL ANALYSIS – SMALL SYSTEMS

2017 - 2018

(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)	6.4	38.5	35.0	33.0	-	-
Aluminum	0.115	0.013	0.007	<0.006	-	0.2
Ammonia (N)	<0.50	<0.050	0.06	<0.050	-	-
Arsenic	<0.001	<0.001	0.004	0.004	0.010	-
Calcium	2.50	18.0	9.7	8.7	-	-
Chloride	7.0	10.1	5.4	7.2	-	≤250
Chlorate	<0.1	0.4	<0.1	0.2	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Color (True Color Units)	27.0	<3.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	39.0	140.0	85.0	86.0	-	-
Copper (Total)	0.282	0.032	0.003	0.012	-	≤1.0
Fluoride	<0.10	<0.10	0.40	0.41	1.5	-
Hardness (as CaCO3)	8.4	48.5	29.0	26.0	-	-
Hardness (as CaCO3) (Grains/IG)	0.59	3.4	2.0	1.8	-	-
HAA5 (avg.)	-	0.049	-	<0.005	0.080	-
Iron (Total)	0.953	<0.050	<0.056	<0.050	-	≤0.3
Langelier Index @ 4°C	-2.6	-2.3	-1.90	-1.5	-	-
Langelier Index @ 20°C	-2.2	-2.1	-1.65	-1.2	-	-
Lead (Total) (µg/l)	2.1	<0.50	<0.50	<0.50	10.0	-
Magnesium	0.54	0.65	1.1	1.1	-	-
Manganese (Total)	0.431	0.032	<0.002	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	<0.055	<0.053	<0.055	<0.050	10.0	-
pH (pH Units)	6.50	7.4	7.16	7.6	-	7.0 - 10.5
Potassium	0.21	0.25	0.50	0.47	-	-
Sodium	4.0	14.3	5.8	6.7	-	≤200
Solids (Total Dissolved)	28.5	97.5	59.0	58.0	-	≤500
Sulfate	3.6	28.3	2.5	2.4	-	≤500
Turbidity (NTU)	0.94	<0.09	0.26	<0.06	*0.2/1.0**1.0	≤5
Total Organic Carbon (TOC)	4.2	2.3	<0.50	<0.50	-	-
THM's (avg.)	-	0.071	-	<0.001	0.100	-
Uranium (µg/l)	<0.10	<0.10	10.9	10.0	20.0	-
Zinc (Total)	0.006	0.044	<0.005	<0.005	-	≤5.0
PCB (µg/l)	<0.05	<0.05	<0.050	<0.050	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.10/<0.10	<0.10/<0.10	0.27/0.46	0.26/<0.12	0.5 / 1.0	-
Lead -210 (Bq/L)	-	-	-	<0.10	0.2	-

*The Bennery Lake plant must produce water with turbidity of <0.2 NTU 95% of the time and <1.0 NTU 100% of the time.
**The Five Island Lake plant must produce water with turbidity of <1.0 NTU 95% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS - SMALL SYSTEMS

2017 - 2018

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	MIDDLE MUSQUODOBOIT		COLLINS PARK		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water			Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	44.0	150.0	12.0	9.4	-	-
Aluminum	0.006	<0.005	0.051	0.006	-	0.2
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	<0.001	<0.001	0.003	<0.001	0.010	-
Calcium	14.0	3.3	6.3	0.22	-	-
Chloride	12.0	7.2	37.0	8.2	-	≤250
Chlorate	<0.1	0.1	<0.1	0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Color (True Color Units)	<5.0	<5.0	19.0	<5.0	-	≤15.0
Conductivity (µS/cm)	150.0	270.0	160.0	38.0	-	-
Copper (Total)	0.005	0.003	<0.002	<0.002	-	≤1.0
Fluoride	<0.10	<0.10	<0.10	<0.10	1.5	-
Hardness (as CaCO3)	56.0	13.0	19.0	<1.0	-	-
Hardness (as CaCO3) (Grains/IG)	3.9	0.9	1.3	0.1	-	-
HAA5 (avg.)	-	<0.005	-	<0.005	0.080	-
Iron (Total)	<0.050	<0.050	0.111	<0.050	-	≤0.3
Langelier Index @ 40C	-1.6	-0.9	-2.35	-3.53	-	-
Langelier Index @ 200C	-1.3	-0.6	-2.00	-3.28	-	-
Lead (Total) (µg/l)	0.63	<0.50	<0.50	<0.50	10.0	-
Magnesium	5.0	1.20	0.87	<0.10	-	-
Manganese (Total)	0.002	<0.002	0.054	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate & Nitrite (as N)	0.20	0.18	0.15	<0.09	10.0	-
pH (pH Units)	7.1	7.6	7.6	7.3	-	7.0 - 10.5
Potassium	1.10	0.52	0.84	0.16	-	-
Sodium	6.0	48.5	24.0	7.9	-	≤200
Solids (Total Dissolved)	110.0	145.0	81.5	35.0	-	≤500
Sulfate	11.5	<2.0	7.8	<2.0	-	≤500
Turbidity (NTU)	0.50	<0.10	0.73	<0.06	*0.1/0.3	≤5
Total Organic Carbon (TOC)	0.50	<0.50	3.5	<0.50	-	-
THM's (avg.)	-	<0.005	-	0.004	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.055	<0.005	0.070	-	≤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	-

*Ultra-filtration membrane plants must produce water with turbidity of <0.1 NTU 99% of the time and <0.3 NTU 100% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS - SMALL SYSTEMS

2017 - 2018

(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	*Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	71.0	74.0		25.0	-	-
Aluminum	0.007	0.005		0.123	-	0.2
Ammonia (N)	<0.050	<0.050		<0.050	-	-
Arsenic	<0.002	<0.001		<0.001	0.010	-
Calcium	38.0	36.0		4.4	-	-
Chloride	65.0	70.5		8.8	-	≤250
Chlorate	<0.1	0.4		0.2	1.0	-
Chlorite	<0.1	<0.1		<0.1	1.0	-
Color (True Color Units)	<5.0	<5.0		<5.0	-	≤15.0
Conductivity (µS/cm)	350.0	370.0		94.0	-	-
Copper (Total)	<0.002	<0.002		<0.002	-	≤1.0
Fluoride	0.24	0.24		0.74	1.5	-
Hardness (as CaCO3)	120.0	110.0		12.0	-	-
Hardness (as CaCO3) (Grains/IG)	8.40	7.7		0.85	-	-
HAA5 (avg.)	-	<0.005		0.046	0.080	-
Iron (Total)	0.784	<0.050		<0.050	-	≤0.3
Langelier Index @ 4°C	-0.12	-0.41		-1.87	-	-
Langelier Index @ 20°C	+0.48	-0.16		-1.62	-	-
Lead (Total) (µg/l)	<0.50	<0.50		<0.50	10.0	-
Magnesium	4.90	4.60		0.42	-	-
Manganese (Total)	0.815	<0.002		0.007	-	≤0.05
Mercury (µg/l)	<0.013	<0.013		<0.013	1.0	-
Nitrate & Nitrite (as N)	<0.050	<0.050		0.058	10.0	-
pH (pH Units)	7.70	7.7		7.6	-	7.0 - 10.5
Potassium	0.88	0.81		0.33	-	-
Sodium	25.0	26.5		15.5	-	≤200
Solids (Total Dissolved)	210.0	210.0		69.5	-	≤500
Sulfate	18.0	18.0		11.3	-	≤500
Turbidity (NTU)	8.0	<0.04		<0.08	**1.0 ***0.2/1.0	≤5
Total Organic Carbon (TOC)	<0.50	<0.50		1.9	-	-
THM's (avg.)	-	<0.003		0.067	0.100	-
Uranium (µg/l)	<0.10	<0.10		<0.10	20.0	-
Zinc (Total)	<0.009	<0.005		0.085	-	≤5.0
PCB (µg/l)	<0.05	<0.05		<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.10/<0.10	<0.10/<0.11		<0.11/<0.11	0.5/1.0	-

*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 as facility upgrades are being implemented at the Miller Lake Water Supply System, including the connection of new wells to the facility.

**The Silver Sands plant must produce water with turbidity of <1.0 NTU 95% of the time.

***The Miller Lake plant must produce water with turbidity of <0.2 NTU 95% of the time and <1.0 NTU 100% of the time, as is required by Provincial Permit.

TYPICAL ANALYSIS OF BOMONT WATER

2017 - 2018

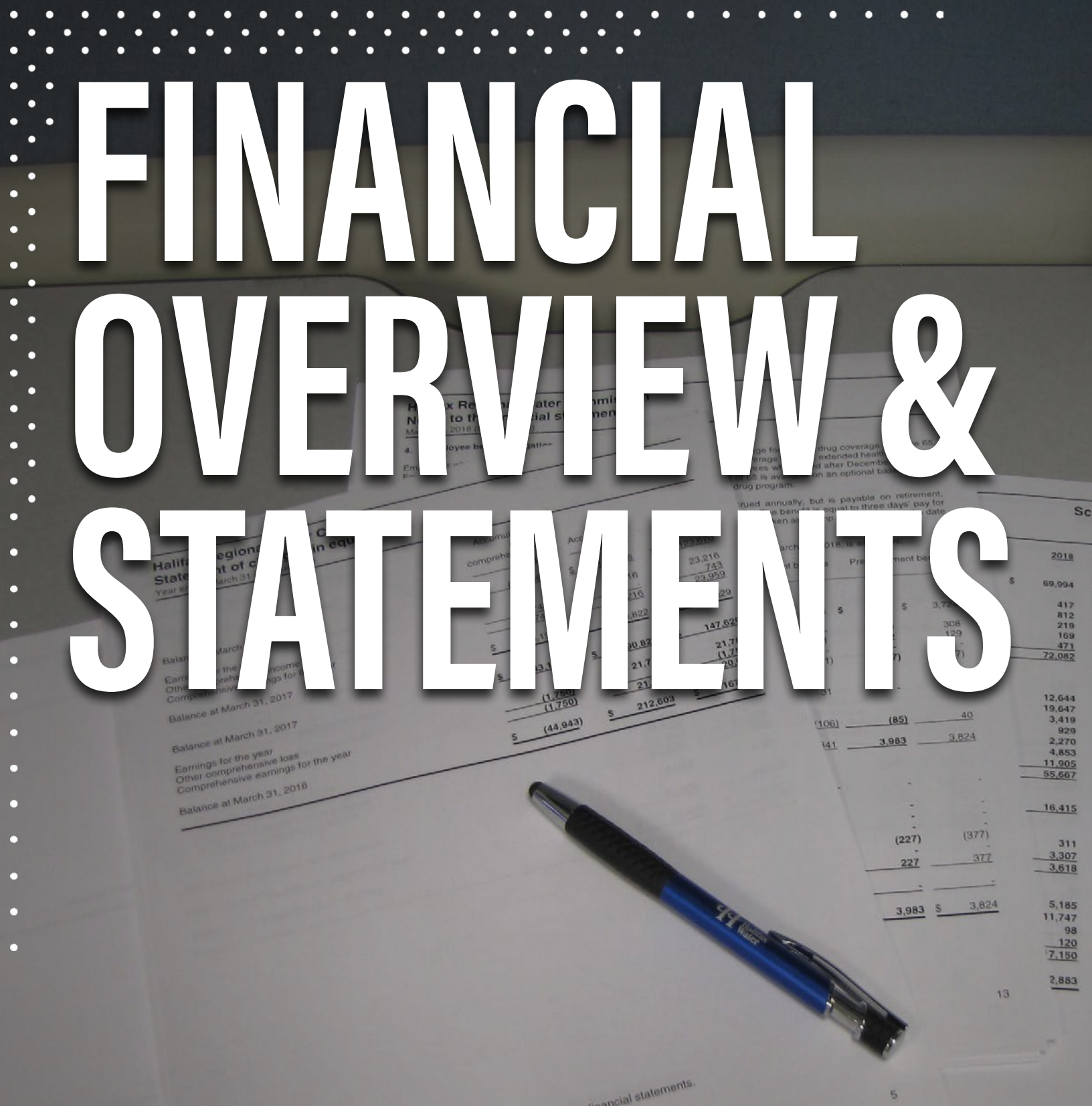
(in milligrams per litre unless shown otherwise)

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)	13.0	16.0			-	-
Aluminum	0.130	0.037			-	0.2
Ammonia (N)	0.083	<0.050			-	-
Arsenic	0.002	<0.001			0.010	-
Calcium	8.0	10.0			-	-
Chloride	21.0	41.0			-	≤250
Chlorate	<0.1	0.4			1.0	-
Chlorite	<0.1	<0.10			1.0	-
Colour (True Colour Units)	34.0	5.0			-	≤15.0
Conductivity (µS/cm)	110.0	130.0			-	-
Copper (Total)	0.010	0.007			-	≤1.0
Fluoride	<0.10	<0.10			1.5	-
Hardness (as CaCO3)	24.0	28.0			-	-
Hardness (as CaCO3) (Grains/IG)	1.7	2.0			-	-
HAA5 (avg.)	-	0.060			0.080	-
Iron (Total)	0.230	<0.050			-	<0.3
Langelier Index @ 4°C	-3.0	-2.16			-	-
Langelier Index @ 20°C	-2.8	-1.91			-	-
Lead (Total) (µg/l)	<0.67	<0.50			10.0	-
Magnesium	0.870	0.71			-	-
Manganese (Total)	0.031	0.009			-	≤0.05
Mercury (µg/l)	<0.013	<0.013			1.0	-
Nitrate & Nitrite (as N)	0.17	<0.055			10.0	-
pH (pH Units)	7.1	7.4			-	7.0 - 10.5
Potassium	0.60	0.51			-	-
Sodium	12.0	14.5			-	≤200
Solids (Total Dissolved)	81.0	110.0			-	≤500
Sulphate	15.5	<2.4			-	≤500
Turbidity (NTU)	2.8	0.17			*0.1/0.3	≤5
Total Organic Carbon (TOC)	5.0	1.4			-	-
THM's (avg.)	-	0.064			0.100	-
Uranium (µg/l)	<0.10	<0.10			20.0	-
Zinc (Total)	<0.005	<0.024			-	≤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	-

*Ultra-filtration membrane plants must produce water with turbidity of <0.1 NTU 99% of the time and <0.3 NTU 100% of the time, as required by Provincial Permit.

FINANCIAL OVERVIEW & STATEMENTS



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.

Financial Overview

Abbreviated Financial Information
March 31, 2018
(In thousands)

ASSETS				
Fixed				
Utility Plant in Service at Cost			$	1,661,586
Provision for Depreciation				(429,735)
Net Book Value				1,231,851
Capital Work In Progress				24,550
Regulatory Asset				3,197
Current				93,333
TOTAL ASSETS			**$**	**1,352,931**
LIABILITIES				
Long Term Debt			$	213,501
Other Than Long Term Debt				97,853
TOTAL LIABILITIES			**$**	**311,354**
EQUITY				
Special Purpose Reserves			$	27,861
Contributed Capital Surplus				1,025,797
Accumulated Other Comprehensive Income				(44,943)
Operating Surplus used to Fund Capital, Cumulative				12,380
Capital Surplus				1,021,095
Operating Surplus April 1, 2017				16,679
2017/18 OPERATIONS				
Operating Revenue	$	138,145		
Financial Revenue		4,486		
Revenue From all Sources	$	142,631		
Expenditures				
Operating Expenses	$	83,190		
Depreciation		21,262		
Grant in lieu of taxes HRM		4,774		
Financial Expenses		29,602		
Total Expenditures	$	138,828		
Excess of Expenditures over Revenue				3,803
Accumulated Operating Surplus March 31, 2018				20,482
TOTAL EQUITY			**$**	**1,041,577**
TOTAL LIABILITIES & EQUITY			**$**	**1,352,931**

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, 2018

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Independent auditor's report

Grant Thornton LLP
Nova Centre, North Tower
Suite 1000, 1675 Grafton Street
Halifax, NS
B3J 0E9

T (902) 421-1734
F (902) 420-1068
www.GrantThornton.ca

To the Members of the Board of the
Halifax Regional Water Commission

We have audited the accompanying financial statements of the Halifax Regional Water Commission, which comprise the statement of financial position as at March 31, 2018, and the statement of comprehensive earnings, statement of changes in equity and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the financial statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with International Financial Reporting Standards, 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.

Auditor's responsibility
Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained in our audit is sufficient and appropriate to provide a basis for our audit opinion.

Other matter
Our audit was conducted for the purposes of forming an opinion on the financial statements taken as a whole. Schedules A to G 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, only to the extent necessary to express an opinion, on the audit of the financial statements taken as a whole.

Opinion
In our opinion, the financial statements present fairly, in all material respects, the financial position of the Halifax Regional Water Commission as at March 31, 2018 and its financial performance and its cash flows for the years then ended in accordance with International Financial Reporting Standards.

Grant Thornton LLP

Halifax, Canada
June 21, 2018

Chartered Professional Accountants
Licensed Public Accountants

Halifax Regional Water Commission
Statement of earnings
Year ended March 31, 2018 (in thousands)

	2018	2017
Operating revenues		
Water	**$ 47,220**	$ 47,183
Wastewater	**69,994**	69,475
Stormwater	**10,016**	10,542
Fire protection	**7,074**	7,074
Private fire protection	**856**	831
Other operating revenue	**2,985**	2,892
	138,145	137,997
Operating expenditures (Note 14)		
Water supply and treatment	**8,646**	8,050
Water transmission and distribution	**9,410**	8,997
Wastewater collection	**12,642**	11,639
Stormwater collection	**4,842**	4,097
Wastewater treatment	**19,647**	19,794
Engineering and information services	**8,105**	7,576
Regulatory services	**2,450**	2,356
Customer service	**4,896**	4,432
Administration and pension	**12,553**	11,799
Depreciation and amortization	**41,625**	43,433
	124,816	122,173
Earnings from operations before financial and other revenues and expenditures	**13,329**	15,824
Financial and other revenues		
Interest	**694**	780
Contributed capital	**17,372**	17,980
Other	**3,792**	2,543
	21,858	21,303
Financial and other expenditures		
Interest on long term debt	**7,884**	8,475
Amortization of debt discount	**202**	199
Grant in lieu of taxes	**4,774**	4,578
Other	**354**	467
	13,214	13,719
Earnings for the year before regulatory deferral account balance amortization	**21,973**	23,408
Regulatory deferral account balance amortization (Note 5)	**(192)**	(192)
Earnings for the year	**$ 21,781**	$ 23,216

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of comprehensive earnings

Year ended March 31 (in thousands)

	2018	2017
Earnings for the year	**$ 21,781**	$ 23,216
Other comprehensive (loss) income		
Items that will not be reclassified subsequently to earnings:		
Re-measurement on defined benefit plans	**(1,750)**	743
Total comprehensive earnings for the year	**$ 20,031**	$ 23,959

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of financial position
March 31 (in thousands)

	2018	2017
Assets		
Current		
Cash and cash equivalents	**$ 51,470**	$ 55,879
Receivables		
Customer charges and contractual	**17,494**	13,321
Unbilled service revenues	**16,640**	17,158
Halifax Regional Municipality	**5,274**	1,880
Inventory	**1,442**	1,601
Prepaids	**1,013**	867
	93,333	90,706
Intangible assets (Note 11)	**13,877**	10,275
Capital work in progress	**24,550**	28,406
Utility plant in service (Note 12)	**1,200,430**	1,144,152
Total assets	**1,332,190**	1,273,539
Regulatory deferral account balance (Note 5)	**3,196**	3,388
Total assets and regulatory deferral account debit balances	**$ 1,335,386**	$ 1,276,927
Liabilities		
Current		
Payables and accruals		
Trade	**$ 22,715**	$ 16,790
Interest on long term debt	**2,030**	2,101
Halifax Regional Municipality	**2,439**	295
Contractor and customer deposits	**186**	191
Current portion of deferred contributed capital	**13,405**	12,889
Current portion of long term debt (Note 13)	**22,630**	21,669
Unearned revenue	**584**	787
	63,989	54,722
Deferred contributed capital	**842,967**	808,632
Long term debt (Note 13)	**190,871**	203,299
Employee benefit obligation – pension plan (Note 4)	**65,486**	58,480
Employee benefit obligation – post-retirement benefits (Note 4)	**430**	341
Employee benefit obligation – pre-retirement benefits (Note 4)	**3,983**	3,824
	1,167,726	1,129,298
Equity		
Accumulated other comprehensive (loss) (page 5)	**(44,943)**	(43,193)
Accumulated surplus (page 5)	**212,603**	190,822
	167,660	147,629
	$ 1,335,386	$ 1,276,927

Contingent liabilities (Note 3)
Commitments (Note 6)

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 (in thousands)

	Accumulated other comprehensive (loss)	Accumulated surplus	Total
Balance at March 31, 2016	$ (43,936)	$ 167,606	$ 123,670
Earnings for the year	-	23,216	23,216
Other comprehensive income	743	-	743
Comprehensive earnings for the year	743	23,216	23,959
Balance at March 31, 2017	$ (43,193)	$ 190,822	$ 147,629
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**

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Statement of cash flows
Year ended March 31 (in thousands)

	2018	2017
(Decrease) increase in cash and cash equivalents		
Operating		
Comprehensive earnings for the year	**$ 20,031**	$ 23,959
Depreciation and amortization	**25,926**	26,692
Employee benefit obligations	**7,254**	4,191
(Gain) loss on disposal of plant in service	**(127)**	59
	53,084	54,901
Change in non-cash operating working capital items (Note 7)	**754**	5,172
	53,838	60,073
Financing		
Proceeds from issuance of long term debt	**10,000**	9,053
Contributed capital	**11,162**	9,231
Debt issue costs, net	**121**	122
Principal repayment on Harbour Solutions long term debt	**(6,500)**	(6,500)
Principal repayments of long term debt	**(15,089)**	(16,695)
	(306)	(4,789)
Investing		
Deferred capital contributions	**3,701**	629
Proceeds from sale of plant in service	**120**	197
Purchase of capital work in progress	**(14,405)**	(19,393)
Purchase of utility plant in service	**(47,357)**	(27,316)
	(57,941)	(45,883)
Net change in cash and cash equivalents	**(4,409)**	9,401
Cash and cash equivalents, beginning of year	**55,879**	46,478
Cash and cash equivalents, end of year	**$ 51,470**	$ 55,879

See accompanying notes to the financial statements.

Halifax Regional Water Commission
Notes to the financial statements
March 31, 2018 (in thousands)

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 21, 2018.

(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

The Commission initially recognizes and measures its financial assets and liabilities at fair value.

All financial instruments are classified into one of five categories: fair value through profit and loss, held to maturity, loans and receivables, available for sale financial assets, or other financial liabilities. All financial instruments are initially measured in the statement of financial position at fair value. Financial instruments subsequently measured at amortized cost include transaction costs.

Subsequent measurement and changes in fair value will depend on their initial classification, as follows:

- Fair value through profit and loss financial instruments are measured at fair value and changes in fair value are recognized in net earnings;
- Available for sale financial assets are measured at fair value with changes in fair value recorded in other comprehensive income until the financial asset is derecognized or impaired at which time the amounts would be recorded in profit or loss; and
- Loans and receivables, held to maturity investments, and other financial liabilities are measured at amortized cost using the effective interest method.

The Commission's financial assets and liabilities are classified and measured as follows:

Asset/Liability	Classification	Measurement
Cash and cash equivalents	Loans and receivables	Amortized cost
Receivables	Loans and receivables	Amortized cost
Receivable from HRM	Loans and receivables	Amortized cost
Payables and accruals	Other financial liabilities	Amortized cost
Long term debt	Other financial liabilities	Amortized cost
Deposits	Other financial liabilities	Amortized cost

(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 assessed the impact of the new standard and concluded it will not be 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. The new standard IFRS 9 is effective for annual periods beginning on or after January 1, 2018. The Commission has assessed the impact of the new standard and concluded it will not be material to the financial statements.

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 2018, the Commission funded $635 (2017 - $674) 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.

Information about the Commission's plans, based on an actuarial extrapolation as at March 31, 2018, is as follows on the next page:

Halifax Regional Water Commission
Notes to the financial statements

March 31, 2018 (in thousands)

	Pension Plan		Post-retirement benefits		Pre-retirement benefits	
	2018	2017	**2018**	2017	**2018**	2017
Change in accrued benefit obligation						
Balance, beginning of year	**$ 168,363**	$ 152,633	**$ 341**	$ 466	**$ 3,824**	$ 3,724
Current service cost	**6,112**	5,020	**-**	-	**339**	308
Interest cost	**6,484**	6,160	**8**	11	**132**	129
Contributions by plan participants	**2,725**	2,417	**-**	-	**-**	-
Benefit payments	**(4,265)**	(4,715)	**(63)**	(61)	**(227)**	(377)
Re-measurements – actuarial (gains)/ losses from changes in demographic assumptions	**-**	-	**(42)**	31	**-**	-
Re-measurements – actuarial (gains)/ losses from changes in financial/experience assumptions	**7,762**	6,848	**186**	(106)	**(85)**	40
Balance, end of year	**187,181**	168,363	**430**	341	**3,983**	3,824
Change in fair value of plan assets						
Balance, beginning of year	**109,883**	98,368	**-**	-	**-**	-
Interest income	**4,206**	3,934	**-**	-	**-**	-
Administrative expenses	**(69)**	(144)	**-**	-	**-**	-
Actual return on plan assets	**5,952**	7,639	**-**	-	**-**	-
Benefit payments	**(4,265)**	(4,715)	**(63)**	(61)	**(227)**	(377)
Contributions: Employee	**2,725**	2,417	**-**	-	**-**	-
Employer	**3,263**	2,384	**63**	61	**227**	377
Balance, end of year	**121,695**	109,883	**-**	-	**-**	-
Accrued benefit liability at March 31	**$ 65,486**	$ 58,480	**$ 430**	$ 341	**$ 3,983**	$ 3,824

Included in the statement of earnings is pension expense of $8,461 (2017 - $7,390).

The significant actuarial assumptions adopted in measuring the Commission's accrued benefit obligations are as follows:

	2018 Pension Plan	2017 Pension Plan	**2018 Post-Retirement Benefits**	2017 Post-Retirement Benefits	**2018 Pre-Retirement Benefit**	2017 Pre-Retirement Benefit
Discount rate	**3.60%**	3.80%	**3.20%**	2.70%	**3.60%**	3.40%
Expected return on plan assets	**3.60%**	3.80%	**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	**6.92%**	7.16%	**N/A**	N/A
Dental benefit inflation per year	**N/A**	N/A	**4.50%**	4.50%	**N/A**	N/A

The measurement date used to determine the Plan assets and the accrued benefit obligation was March 31, 2018. The most recent valuation was completed January 1, 2016. The next review is scheduled for January 1, 2019.

The estimated employer contributions expected to be paid into the defined benefit plan and supplemental plan for the next fiscal year are $3,366.

5. Regulatory deferral account balance

In June 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 May 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 2018 is $192 (2017 - $192).

	2018	2017
Beginning balance	**$ 3,388**	$ 3,580
Amortization	**(192)**	(192)
Ending balance	**$ 3,196**	$ 3,388

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 $4,999 for the 2019 fiscal year.

At March 31, 2018, the Commission had $85,728 in expenditures from current and past approved capital budgets not yet expended.

7. Supplemental cash flow information

Changes in non-cash operating working capital items

	2018	2017
Receivables, customer charges and unbilled	**$ (3,655)**	$ 1,333
Payable to/receivable from HRM, net	**(1,250)**	3,389
Inventory	**159**	83
Prepaids	**(146)**	(5)
Payables and accruals, trade	**5,925**	104
Accrued interest on long term debt	**(71)**	(128)
Contractor and customer deposits	**(5)**	(2)
Unearned revenue	**(203)**	398
	$ 754	$ 5,172

Interest paid during the year was $7,884 (2017 - $8,475).

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:

	2018	2017
Long term debt (current portion)	**$ 22,630**	$ 21,669
Long term debt	**190,871**	203,299
Funded debt	**213,501**	224,968
Equity	**167,660**	147,629
Capital under management	**$ 381,161**	$ 372,597

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:

	2018	2017
Receivables		
Customer charges, contractual and unbilled	**$ 36,552**	$ 32,702
Less: allowance for doubtful accounts	**(2,418)**	(2,223)
	$ 34,134	$ 30,479

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 $5,097 (2017 - $5,025).
- The Commission recorded fire protection revenue from HRM of $7,074 (2017 - $7,074).
- The Commission paid a grant in lieu of tax of $4,774 (2017 - $4,578).
- 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:

	2018	2017
Short term benefits	**$ 1,388**	$ 1,345
Post-employment benefits	**219**	243
Total compensation	**$ 1,607**	$ 1,588

11. Intangible assets

	2018	2017
Cost		
Beginning balance, April 1	**$ 13,213**	$ 12,232
Additions	**4,675**	981
Total cost, March 31	**17,888**	13,213
Accumulated amortization		
Beginning balance, April 1	**2,938**	2,031
Amortization	**1,073**	907
Total accumulated amortization, March 31	**4,011**	2,938
Net book value	**$ 13,877**	$ 10,275

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, 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**

	Land	Structures and improvements	Treatment and network equipment	Distribution and collection network	Tools and work equipment	Total
Cost						
Beginning balance, April 1, 2016	$ 20,518	$ 206,944	$ 214,182	$ 760,027	$ 12,291	$ 1,213,962
Additions	262	8,726	4,814	28,005	6,874	48,681
Disposals	-	(795)	(223)	(386)	(843)	(2,247)
Total cost, March 31, 2017	20,780	214,875	218,773	787,646	18,322	1,260,396
Accumulated depreciation						
Beginning balance, April 1, 2016	$ -	$ 21,561	$ 22,714	$ 28,354	$ 1,676	$ 74,305
Depreciation	-	12,246	11,957	15,390	2,346	41,939
Total accumulated depreciation March 31, 2017	-	33,807	34,671	43,744	4,022	116,244
Net book value, March 31, 2017	$ 20,780	$ 181,068	$ 184,102	$ 743,902	$ 14,300	$ 1,144,152

13. Long-term debt

	Interest rates	2018	2017
Payable to Municipal Finance Corporation (MFC)			
Water	1.040% to 6.750%	**$ 63,181**	$ 68,380
Halifax Harbour Solutions	0.900% to 4.329%	**7,800**	8,450
Wastewater/stormwater	1.040% to 4.500%	**86,209**	85,120
Stormwater	1.040% to 4.114%	**11,723**	11,985
		168,913	173,935
Payable to Halifax Regional Municipality			
MFC Wastewater/stormwater	1.200% to 4.940%	**45,500**	52,066
		214,413	226,001
Less: debt issue costs		**(912)**	(1,033)
		213,501	224,968
Less: amount payable within one year		**(22,630)**	(21,669)
		$ 190,871	$ 203,299

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:

2019	$ 22,630
2020	$ 23,759
2021	$ 18,084
2022	$ 16,039
2023	$ 40,752

14. Operating expenditures by nature

	2018	2017
Salaries and benefits	**$ 41,948**	$ 39,839
Training	**618**	656
Contract services	**13,619**	12,118
Electricity	**6,323**	6,295
Operating supplies	**9,945**	9,423
Professional services	**4,559**	4,768
Chemicals	**4,698**	4,404
Depreciation and amortization	**43,106**	44,670
	$ 124,816	$ 122,173

Halifax Regional Water Commission
Schedule of utility plant in service
Year ended March 31, 2018 (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, 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**
Cost												
Beginning balance, April 1, 2016												
Cost	$ 15,297	$ 87,643	$ 9,711	$ 22,901	$ 4,792	$ 343,510	$ 34,082	$ 14,442	$ 18,887	$ 9,467	$ 23,876	$ 584,608
Additions	120	5,486	9	870	254	6,977	1,551	701	445	97	3,336	19,846
Disposals	-	(795)	-	-	-	(386)	-	(223)	-	-	(341)	(1,745)
Total cost, March 31, 2017	15,417	92,334	9,720	23,771	5,046	350,101	35,633	14,920	19,332	9,564	26,871	602,709
Accumulated depreciation												
Beginning balance, April 1, 2016	-	25,551	6,778	14,522	3,545	76,018	5,795	5,480	3,605	2,648	17,117	161,059
Depreciation	-	2,483	250	956	144	4,226	582	470	297	274	1,192	10,874
Total accumulated depreciation, March 31, 2017	-	28,034	7,028	15,478	3,689	80,244	6,377	5,950	3,902	2,922	18,309	171,933
Net book value, March 31, 2017	$ 15,417	$ 64,300	$ 2,692	$ 8,293	$ 1,357	$ 269,857	$ 29,256	$ 8,970	$ 15,430	$ 6,642	$ 8,562	$ 430,776

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, 2018 (in thousands)

Schedule A

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, 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**
Cost											
Beginning balance, April 1, 2016											
Cost	$ 5,187	$ 172,048	$ 16,870	$ 159,921	$ 7,777	$ 283,562	$ 16,170	$ -	$ 22,401	$ 11,994	$ 695,930
Additions	142	3,160	709	1,201	433	6,607	2,938	-	3,508	95	18,793
Disposals	-	-	-	-	-	-	-	-	(502)	-	(502)
Total cost, March 31, 2017	5,329	175,208	17,579	161,122	8,210	290,169	19,108	-	25,407	12,089	714,221
Accumulated depreciation											
Beginning balance, April 1, 2016	-	48,798	5,962	39,289	910	53,469	1,149	-	9,877	3,021	162,475
Depreciation	-	4,899	615	7,966	456	3,949	353	-	1,696	429	20,363
Total accumulated depreciation, March 31, 2017	-	53,697	6,577	47,255	1,366	57,418	1,502	-	11,573	3,450	182,838
Net book value, March 31, 2017	$ 5,329	$ 121,511	$ 11,002	$ 113,867	$ 6,844	$ 232,751	$ 17,606	$ -	$ 13,834	$ 8,639	$ 531,383

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, 2018 (in thousands)

Schedule A

Stormwater

	Structures and improvements	Collection system	Laterals	Tools and work equipment	Total
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**
Cost					
Beginning balance, April 1, 2016					
Cost	$ 9,705	$ 218,501	$ 3,929	$ 2,034	$ 234,169
Additions	80	9,250	682	1,011	11,023
Disposals	-	-	-	-	-
Total cost, March 31, 2017	9,785	227,751	4,611	3,045	245,192
Accumulated depreciation					
Beginning balance, April 1, 2016	1,226	30,690	216	504	32,636
Depreciation	176	5,690	85	366	6,317
Total accumulated depreciation, March 31, 2017	1,402	36,380	301	870	38,953
Net book value, March 31, 2017	$ 8,383	$ 191,371	$ 4,310	$ 2,175	$ 206,239

During the year, $267 of interest was capitalized to Utility Plant in Service (2017 - $491).

Cumulative utility plant in service	**Water**	**Wastewater**	**Stormwater**	**Total**
Net book value, March 31, 2018	**$ 455,486**	**$ 558,203**	**$ 218,360**	**$ 1,232,049**
Net book value, March 31, 2017	$ 430,776	$ 531,383	$ 206,239	$ 1,168,398

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 long term debt

Schedule B

Year ended March 31, 2018 (in thousands)

	Interest rate	Final Maturity	Balance Remaining 2018	2017
Payable to Municipal Finance Corporation				
Water				
Debenture 23 A 1	4.250% to 6.125%	2018	$ **600**	$ 700
Debenture 27 A 1	4.650% to 5.010%	2017	**-**	1,108
Debenture 28 A 1	6.500% to 6.750%	2018	**1,100**	1,200
Debenture 98 A 1	3.750% to 5.088%	2019	**3,671**	7,128
Debenture 29 A 1	0.900% to 4.329%	2019	**450**	675
Debenture 30 A 1	1.550% to 3.870%	2020	**525**	700
Debenture 31 A 1	1.630% to 4.221%	2021	**600**	750
Debenture 32 A 1	1.636% to 3.480%	2022	**1,000**	1,200
Debenture 32 C 1	1.510% to 3.160%	2022	**8,051**	8,587
Debenture 33 A 1	1.330% to 3.489%	2023	**8,090**	8,595
Debenture 33 B 1	1.285% to 4.114%	2023	**5,930**	6,300
Debenture 34 B 1	1.200% to 3.190%	2024	**11,622**	12,305
Debenture 35 B 1	1.040% to 2.894%	2025	**12,120**	12,794
Debenture 36 A 1	1.150% to 2.925%	2026	**1,800**	2,000
Debenture 36 B 1	1.150% to 2.506%	2026	**4,122**	4,338
Debenture 37 A 1	1.734% to 3.073%	2027	**3,500**	-
Halifax Harbour Solutions				
Debenture 29 A 1	0.900% to 4.329%	2019	**7,800**	8,450
Wastewater/stormwater				
Debenture 30 A 1	1.510% to 4.500%	2020	**2,210**	2,380
Debenture 32 A 1	1.636% to 3.480%	2022	**1,797**	1,917
Debenture 32 B 1	1.380% to 3.156%	2022	**24,000**	25,600
Debenture 32 C 1	1.510% to 3.160%	2022	**3,447**	3,676
Debenture 33 A 1	1.330% to 3.489%	2023	**13,488**	14,331
Debenture 33 B 1	1.285% to 4.114%	2023	**8,714**	9,259
Debenture 34 A 1	1.245% to 3.347%	2024	**4,734**	5,012
Debenture 34 B 1	1.200% to 3.190%	2024	**7,298**	7,727
Debenture 35 B 1	1.040% to 2.894%	2025	**12,699**	13,405
Debenture 36 B 1	1.150% to 2.506%	2026	**1,722**	1,813
Debenture 37 A 1	1.735% to 3.073%	2027	**6,100**	-
Stormwater				
Debenture 33 A 1	1.330% to 3.489%	2023	**432**	459
Debenture 33 B 1	1.285% to 4.114%	2023	**2,111**	2,243
Debenture 34 B 1	1.200% to 3.190%	2024	**5,017**	5,313
Debenture 35 B 1	1.040% to 2.894%	2025	**2,907**	3,069
Debenture 36 B 1	1.150% to 2.506%	2026	**856**	901
Debenture 37 A 1	1.734% to 3.073%	2027	**400**	-
			168,913	173,935
Payable to Halifax Regional Municipality				
Municipal Finance Corporation – Wastewater/stormwater				
Debenture 24 B 1	2.840% to 5.940%	2024	**38,500**	44,000
Debenture 27 A 1	4.650% to 5.010%	2017	**-**	66
Debenture 34 B 1	1.200% to 3.190%	2024	**7,000**	8,000
			45,500	52,066
			214,413	226,001
Less: debt issue costs			**(912)**	(1,033)
			213,501	224,968
Less: amount payable within one year			**(22,630)**	(21,669)
			$ 190,871	$ 203,299

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:

2019	$ 22,630
2020	$ 23,759
2021	$ 18,084
2022	$ 16,039
2023	$ 40,752

Schedule C

Halifax Regional Water Commission
Schedule of operations for water service
Year ended March 31, 2018 (in thousands)

	2018	2017
Operating revenues		
Water service	$ 47,220	$ 47,183
Fire protection	7,074	7,074
Private fire protection services	856	831
Other operating revenue		
Bulk water stations	304	330
Customer late payment fees	220	282
Miscellaneous	176	153
	55,850	55,853
Operating expenditures		
Water supply and treatment	8,645	8,050
Water transmission and distribution	9,410	8,997
Engineering and information services	3,850	3,828
Regulatory services	496	493
Customer service	2,348	2,290
Administration and pension	6,910	5,966
Depreciation	8,550	7,756
	40,209	37,380
Earnings from operations before financial and other revenues and expenditures	15,641	18,473
Financial and other revenues		
Interest	313	351
Other	485	375
	798	726
Financial and other expenditures		
Interest on long term debt	2,131	2,378
Repayment of long term debt	8,247	8,400
Amortization of debt discount	94	95
Grant in lieu of taxes	4,774	4,578
Other	149	17
	15,395	15,468
Earnings for the year	$ 1,044	$ 3,731

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Halifax Regional Water Commission
Schedule of operations for wastewater service
Year ended March 31, 2018 (in thousands)

Schedule D

	2018	2017
Operating revenues		
Wastewater service	**$ 69,994**	$ 69,475
Other operating revenue		
Leachate and other contract revenue	**417**	440
Septage tipping fees	**812**	909
Over strength surcharge	**219**	23
Customer late payment fees	**169**	189
Miscellaneous	**471**	428
	72,082	71,464
Operating expenditures		
Wastewater collection	**12,644**	11,639
Wastewater treatment	**19,647**	19,793
Engineering and information services	**3,419**	3,223
Regulatory services	**929**	1,095
Customer service	**2,270**	1,842
Administration and pension	**4,853**	5,017
Depreciation	**11,905**	10,669
	55,667	53,278
Earnings from operations before financial and other revenues and expenditures	**16,415**	18,186
Financial and other revenues		
Interest	**311**	351
Other	**3,307**	2,168
	3,618	2,519
Financial and other expenditures		
Interest on long term debt	**5,185**	5,509
Repayment of long term debt	**11,747**	11,699
Amortization of debt discount	**98**	95
Other	**120**	32
	17,150	17,335
Earnings for the year	**$ 2,883**	$ 3,370

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Schedule E

Halifax Regional Water Commission
Schedule of operations for stormwater service
Year ended March 31, 2018 (in thousands)

	2018	2017
Operating revenues		
Stormwater site generated service	$ 6,169	$ 6,661
Stormwater right-of-way service	3,847	3,881
Other operating revenue		
Customer late payment fees	93	51
Miscellaneous	105	88
	10,214	10,681
Operating expenditures		
Stormwater collection	4,842	4,096
Engineering and information services	556	525
Regulatory services	1,304	768
Customer service	278	300
Administration and pension	789	816
Depreciation	807	677
	8,576	7,182
Earnings from operations before financial and other revenue and expenditures	1,638	3,499
Financial and other revenues		
Investment income	70	78
Financial and other expenditures		
Interest on long term debt	568	588
Repayment of long term debt	1,253	1,221
Amortization of debt discount	10	9
	1,831	1,818
(Loss) earnings for the year	$ (123)	$ 1,759

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Halifax Regional Water Commission
Schedule of regulated activities

Schedule F

Year ended March 31, 2018 (in thousands)

	2018	2017
Operating revenues		
Water service	**$ 47,220**	$ 47,183
Wastewater service	**69,994**	69,475
Stormwater service	**10,016**	10,542
Public fire protection	**7,074**	7,074
Private fire protection services	**856**	831
Other operating revenue	**1,230**	1,207
	136,390	136,312
Operating expenditures		
Water supply and treatment	**9,802**	9,137
Water transmission and distribution	**10,810**	10,411
Wastewater collection	**11,252**	10,347
Stormwater collection	**4,793**	4,039
Wastewater treatment	**18,054**	17,797
Engineering and information services	**7,265**	7,576
Regulatory services	**3,291**	2,356
Customer service	**4,861**	4,396
Administration and pension	**12,501**	11,768
Depreciation	**21,241**	19,095
	103,870	96,922
Earnings from operations before financial and other revenues and expenditures	**32,520**	39,390
Financial and other revenues		
Interest	**694**	780
Other	**3,096**	2,289
	3,790	3,069
Financial and other expenditures		
Interest on long term debt	**7,884**	8,475
Repayment of long term debt	**21,247**	21,320
Amortization of debt discount	**202**	199
Grant in lieu of taxes	**4,774**	4,578
	34,107	34,572
Earnings for the year	**$ 2,203**	$ 7,887

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Schedule F

Halifax Regional Water Commission
Schedule of unregulated activities
Year ended March 31, 2018 (in thousands)

	2018	2017
Operating revenues		
Dewatering	**$ 210**	$ 210
Septage tipping fees	**812**	909
Leachate treatment and contract revenue	**417**	440
Airplane effluent	**121**	89
Other operating revenue	**196**	196
	1,756	1,844
Operating expenditures		
Water supply and treatment	**18**	16
Wastewater treatment	**456**	830
Other	**87**	111
Depreciation	**21**	6
	582	963
Earnings from operations before financial and other revenues and expenditures	**1,174**	881
Financial and other revenues		
Other	**696**	139
Financial and other expenditures		
Other	**269**	49
Earnings for the year	**$ 1,601**	$ 971

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

Halifax Regional Water Commission
Nova Scotia Utility and Review Board information

Schedule G

Year ended March 31, 2018 (in thousands)

Return on rate base	**2018**	2017
Rate of return on rate base for water service	**3.39%**	4.54%
Rate of return on rate base for wastewater service	**5.65%**	6.71%
Rate of return on rate base for stormwater service	**3.45%**	11.78%

Special purpose reserves

	Wastewater & Stormwater Reserves	RDC Water Reserve	RDC Wastewater Reserve	Other Capital Reserves	**2018 Total**	2017 Total
Reserve, beginning of year	$ 3,819	$ 1,246	$ 11,842	$ 5	**$ 16,912**	$ 8,070
Contributions and interest	-	1,086	10,075	1	**11,162**	9,230
Expenditures	(213)	-	-	-	**(213)**	(388)
Reserve, end of year	$ 3,606	$ 2,332	$ 21,917	$ 6	**$ 27,861**	$ 16,912

Summarized consolidated operating results

	Actual 2018	Actual 2017
Operating revenues	**$ 138,145**	$ 137,997
Operating expenditures	**99,437**	97,839
Earnings from operations before financial and other revenues and expenditures	**38,708**	40,158
Non-operating revenues	**4,486**	3,322
Non-operating expenditures	**34,376**	34,622
Earnings for the year	**$ 8,818**	$ 8,858

Schedules are presented in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

STRAIGHT from the SOURCE

Halifax Water

Halifax Water
Halifax Regional Water Commission

ITEM #5-I
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

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

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

DATE: September 21, 2018

SUBJECT: **2018/19 Capital Budget Update**

INFORMATION REPORT

ORIGIN

Approval of 2018/19 Capital Budget

BACKGROUND

The annual capital budget for 2018/19 was approved by the Halifax Water Board on January 31, 2018 and the Nova Scotia Utility and Review Board on April 15, 2018. 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 2018/2019 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 second capital budget variance review of 2018/19 (first review was June 21, 2018) and identifies the opportunities for capital funding re-allocation to specific alternative projects.

DISCUSSION

Subsequent to the development of the 2018/19 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 and delivery as of mid-September 2018, staff have reviewed all proposed projects and identified the existence and magnitude of variances in the following categories:

- Projects projected to be completed under budget, and
- Projects that will be cancelled or deferred to future years

Table 1 – 2018/19 Capital Budget Variance Analysis (Appendix A) includes the results of the current variance analysis as defined above.

The funding approved for projects that are tracking to carry-over into 2019/20 will stay with the project and not be subject to re-allocation. The aggregated funding amount that is tracking to be under spent 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 – 2018/19 Funding Re-allocation Opportunities (Appendix 2) identifies the specific projects or purchases that are identified as current priorities for implementation within 2018/19 that were not within the approved budget.

The subset of opportunity projects from Table 2 that have Project Costs estimated at $250,000 or less, will be the subject of near term funding reports subject to the approval of the General Manager, followed by implementation.

For the opportunity projects that have an estimated cost over $250,000, a project approval and funding request report will be brought to the Halifax Board with a recommendation for approval. These specific projects will be subject to approval by the Nova Scotia Utility and Review Board (NSUARB), consistent with the Public utilities Act.

In conformance with this process five specific capital funding request reports are included within the September 27, 2018 Halifax Water Board agenda.

- Doyle Street Storm Sewer Phase 2
- JD Kline – Raw Water Intake Travelling Screen Replacement
- Leiblin Drive Booster Station – Replacement of Fire Pump
- Bisset Road Storm Sewer Replacement - AC Pipe Renewal

- Coburg Road Water and Wastewater Integrated Project

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.

2018/19 Projected Capital Underspend		**2018/19 Potential Reallocations**	
Water	$997,000	Water	$1,306,000
Wastewater	$3,082,000	Wastewater	$2,600,000
Stormwater	$1,000,000	Stormwater	$1,175,000
Total:	$5,079,000	Total:	$5,081,000

Funding re-allocations made within fiscal year 2018/19 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 2018/19 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 2018/19 have not yet been reflected in rates.

ATTACHMENTS

Table 1 – 2018/19 Capital Budget Project Cost Variance Analysis – September, 2018
Table 2 - 2018/19 Capital Funding Re-allocation Opportunities – September, 2018

Report Prepared By: *Original Signed By:*
Jamie Hannam, P. Eng., MBA,
Director Engineering & Information Services, (902) 490-4804

Financial Approved by: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services
(902) 490-3685

TABLE 1

2018/19 Capital Budget Project Cost Variance Analysis

September 27, 2018

2018/2019 Capital Project	Projected Underspend
WATER	
Water Distribution – Main Renewal Program • The proposed watermain renewal projects on Chadwick Street and Percy/Andrew Street have been deferred to 2019 construction due to deferral of the HRM Streets program at these same locations.	**$925,000**
Lake Lamont – Replace Suction Piping and Chlorine Injection • This project is no longer an operational priority and will not be proceeding at this time.	**$72,000**
WASTEWATER	
Weybridge Lane Pumping Station • Pumping Station proposed to support continued development within West Bedford. Project timeline delayed several years due to timing of achievement of minimum flows required for upgrade. The project is 90% CCC and 10% rate Based due to benefit to existing customers. $500,000 is the 10% BTE allocation.	**$500,000**
Integrated Wastewater Projects – Program • Funds in the amount of $1,915,000 were approved for this project and included in this was $497,000 to undertake integrated wastewater renewals on Chadwick Street. HRM manages these integrated projects and they have advised that this project has been deferred to 2019.	**$497,000**
Gottingen/North Flow Split – Alterations to Combined Sewer • Project design budgeted at $50,000. Design work is in progress and revised estimated cost is $10,000	**$40,000**
Bissett PS Component Upgrade • This project has been deferred to allow the current Infrastructure Master Plan to better inform scope of required work.	**$50,000**
Windmill Road PS Replacement • The location for the proposed pumping station has been determined to be on DND lands. They report the required land acquisition looks	**$1,455,000**

achievable, however, the federal process for land sale will push the construction phase to 2019.	
Wastewater System – Trenchless Program • Funds in the amount of $1,535,000 were approved for this project. The project contract has been awarded and, based on a 5% construction contingency; the final project cost is projected to be $1,420,000. Thus, a $115,000 surplus is projected.	**$115,000**
Halifax WWTF – UV Channel/Densadeg Gate Actuators • Project recommend for cancellation by Operations staff due to operability issues.	**$120,000**
Dartmouth WWTF – UV Channel/Densadeg Gate Actuators • Project recommend for cancellation by Operations staff due to operability issues.	**$155,000**
Eastern Passage WWTF – Secondary Launder Covers • Project recommended for cancellation by Operations staff due to change in process management.	**$150,000**
STORMWATER	
Annual Culvert Replacement Program • $2,212,097 in approved funds. All 22 culverts have been tendered and awarded with an actual cost of $1,200,000	**$1,000,000**
TOTAL	**$5,079,001**

TABLE 2

2018/19 Capital Funding Re-allocation Opportunities

September 27, 2018

2018/19 Capital Project	Project Cost
WATER	
Parkmoor Watermain Renewal • Highest priority renewal outside of potential integrated program.	**$250,000**
Catamaran Watermain Renewal • Highest priority renewal outside of potential integrated program.	**$200,000**
Wright Street Watermain Renewal • Highest priority renewal outside of potential integrated program.	**$100,000**
Lake Major WSP – Butterfly Valve Replacement • Operational priority to accelerate the replacement program with four additional valves	**$72,000**
Middle Musquodoboit WSP HVAC • Prioritized based on historical building cooling issues.	**$30,000**
J.D. Kline Raw Water Travelling Screen Replacement • All three screens proposed for replacement due to failure of two units.	**$425,000**
Leiblin Booster Station Fire Pump Replacement • Extra funding based on final detailed design	**$55,000**
Coburg Rd 2018/19 Water IP • Additional funding Water component of HRM Integrated Project requires additional funds based on actual tender results.	**$174,000**
WASTEWATER	
Harbour Solutions Plant, Main Wastewater Effluent Gate Actuators • Prioritized for improvements to system redundancy	**$80,000**

Mill Cove WWTF Secondary Clarifier Component Protection • Prioritized due to rapid degradation of steel components.	**$150,000**
Middle Musquodoboit WWTF UV • Reaction to current regulatory issues.	**$15,000**
Dartmouth WWTF Densadeg Flow Meters • Priority project from Comprehensive Performance Assessment	**$75,000**
Halifax WWTF Densadeg Flow Meters • Priority project from Comprehensive Performance Assessment	**$75,000**
Roach's Pumping Station Stairwell • The stairwell is in poor structural shape and needs to be replaced.	**$90,000**
Additional Funding – Glendale Drive to Sackville Trunk Sewer • Tenders closed for this project and the total project cost has increased by $246,000	**$246,000**
Additional Scope – Wastewater Lateral Replacements • Propose to add additional lateral replacements to replace no-corrode lateral on Coronation Street in advance of trenchless rehab.	**$100,000**
Trenchless Phase 1 – Additional Scope • Staff have identified additional scope that can be added to the contract for this project. The estimated value of this additional scope is $300,000.	**$300,000**
Additional Funding • Aerotech WWTF Upgrade and Expansion	**1,000,000**
Bissett Forcemain Replacement – AC Pipe removal Additional Funding • Additional volumes of asbestos backfill were disposed of above original estimate volume.	**$154,000**
Coburg Rd 2018/19 Wastewater IP – Additional Funding • Wastewater Component of HRM Integrated project requires additional funds based on actual tender results	**$315,000**
STORMWATER	
Ellenvale Run Retaining Wall System Replacement Additional Funding • 2017/18 Ellenvale project tender came in over budget and the additional funding was provided	**$682,000**

from the 2018/19 Ellenvale project. Thus, the current 2018/19 project is $682,000 under funded based on the detailed design.	
Celtic Drive Storm Sewer Renewal • Near term capital renewal required due to recent structural failure of existing storm sewer.	**$250,000**
Stormwater Culvert Replacements Additional Scope • Add the next three priority culvert renewals from the Culvert Asset Renewal Plan.	**$230,000**
Coburg Rd 2018/19 Stormwater IP – Additional Funding • Stormwater Component of HRM Integrated project requires additional funds based on actual tender results	**$13,000**
TOTAL	**$5,081,000**

Halifax Water
Halifax Regional Water Commission

ITEM #6-I
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services
Allan Campbell, BComm, CPA, CMA, Manager, Finance

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

DATE: September 21, 2018

SUBJECT: **HRM Pension Plan Investment Performance – 2nd Quarter (Q2), 2018**

INFORMATION REPORT

ORIGIN

The Pension Plan investment performance is reported to the Commission periodically throughout the year.

BACKGROUND

None

DISCUSSION

The tables below and the attached Investment Report provide a performance update for Q2 of 2018 (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, 2017 was 6.1%, and totaled $119.7 million.

The total fund returned 1.18% in the 2nd Quarter, which underperformed the policy benchmark of 1.48% by -0.30%. The return for the one-year period ended June 30, 2018 is 8.22%, outperforming the policy benchmark of 6.62% by 1.60%. Other historical returns are provided in Table 1 below:

Table 1 - Returns

	Current Quarter (Apr to Jun)	1-Year	3 - Year Annualized	4 - Year Annualized	Since Inception (Oct 1999)
Fund Return	1.18%	8.22%	7.77%	8.41%	7.13%
Policy Benchmark	1.48%	6.62%	5.97%	6.14%	5.70%
Excess Return	-0.30%	1.60%	1.80%	2.27%	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 most recent scenarios analyzed showing the greatest potential risk, are identified in Table 2 following:

Table 2 – Stress Testing (as at June 30, 2018**)**

Scenario:	Projected Return of Master Trust
Equities down by 5%	-2.01%
CAD increase by 10% compared to the USD	-2.05%
US interest rates decrease by 0.25%	-0.73%
Oil prices drop by 10%	-0.19%

As at June 30, 2018 the Master Trust was in compliance with the Statement of Investment Policies and Procedures (SIP&P), and a summary of the asset mix is provided in Table 3 below:

Table 3 – Asset Mix, as at June 30, 2018

Asset:	Actual	Policy
Cash & Equivalents	0.42%	0.00%
Canadian Equity	5.30%	5.80%
Global Equity	32.27%	30.10%
Bonds	25.72%	30.90%
Minimum Target Return	36.29%	33.20%

ATTACHMENT

Halifax Regional Municipality Pension Plan Investment Report Q2, 2018

Report Prepared by: *Original Signed By:*
Michelle Bennett, BComm, Accountant 902-490-5242
Heather Britten, BComm, Quality Assurance Officer
902-490-1895

ITEM #6-I
HRWC Board
September 27, 2018
ATTACHMENT

HRM PENSION PLAN

Investment Report

Q2 2018

Executive Summary

Compliance

- As at June 30, 2018, the Master Trust (MT) was in compliance with the SIP&P.

Funded Status

- As at December 31, 2016, the going concern funded ratio and transfer ratio were 90.4% and 60% respectively.*
- The December 31, 2017 funded status to be discussed with Eckler.

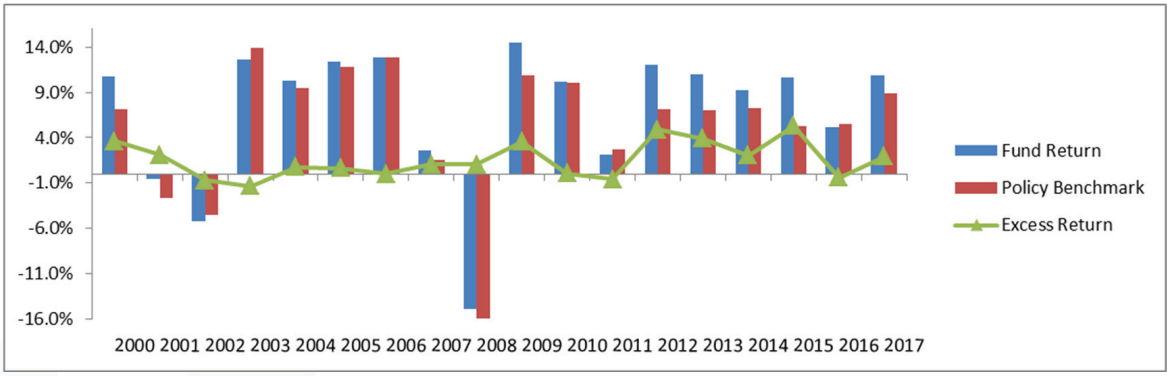
Master Trust Performance (net of fees)

- In Q2, the MT earned 1.18%, underperforming the policy benchmark return by -0.30%.
- For the one-year period ending June 30, 2018, the MT earned 8.22%, outperforming the policy benchmark by 1.60%.
- The MT earned an annualized return of 8.41% over the 4-year period ending June 30, 2018 outperforming the policy benchmark by 2.27% annualized.
- Since inception (October 1999), the MT earned 7.13% annualized outperforming the Plan's long-term rate objective of 6.40%. The table on the next slide summarizes the calendar year returns for the MT.

***Per Eckler Valuation Report as at December 31, 2016. Assumes a going concern discount rate of 6.40%.**

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
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%
Policy Benchmark	7.12%	-2.64%	-4.50%	13.91%	9.50%	11.76%	12.85%	1.53%	-15.88%	10.92%	10.08%	2.71%	7.12%	7.01%	7.24%	5.27%	5.55%	8.91%
Excess Return	3.59%	2.08%	-0.71%	-1.31%	0.77%	0.62%	0.03%	1.07%	1.05%	3.55%	0.04%	-0.60%	4.89%	3.93%	2.03%	5.32%	-0.42%	1.94%

Executive Summary – Cont.

Added Value

- In Q2 of 2018, the MT underperformed its policy benchmark by -0.30%. Attribution: Universe Bonds +0.06%, Global Credit +0.04%, US Equity +0.04%, Emerging Market Equity +0.01%, EAFE Equity +0.01%, World Equity -0.06%, Canadian Equity -0.12%, and Minimum Target Return -0.28%.

Q2 Updates

- No new public or private investments were made in Q2. However, we committed USD 12.5 million to a private credit fund in August 2018. We have invested with this GP since the launch of their inaugural fund in 2011.

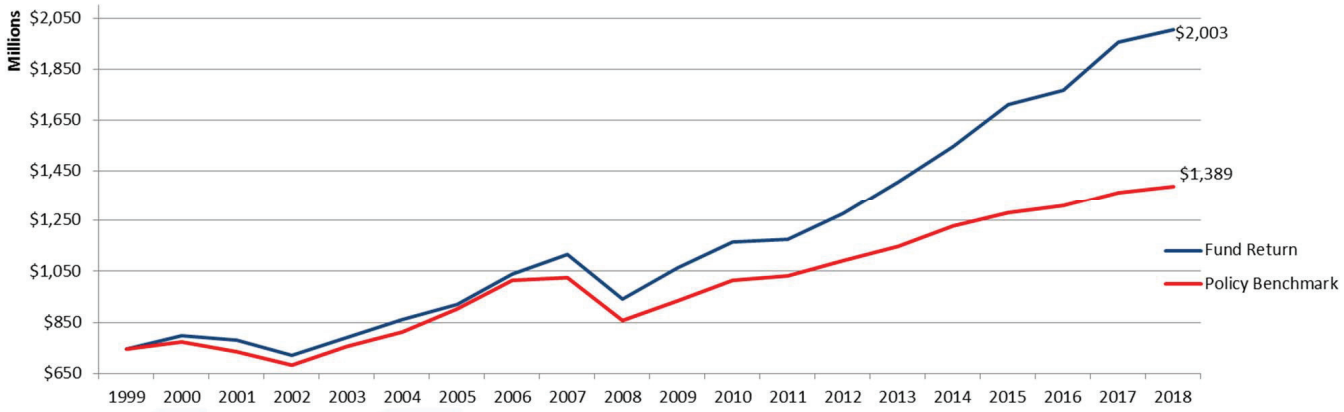
Total Fund Net Returns – June 30, 2018

	Q2 2018	YTD	1-Year	3-Year Annualized	4-Year Annualized	Inception (Oct 1999)
Fund Return	1.18%	2.64%	8.22%	7.77%	8.41%	7.13%
Policy Benchmark*	1.48%	2.29%	6.62%	5.97%	6.14%	5.70%
Excess Return	-0.30%	0.35%	1.60%	1.80%	2.27%	1.43%

*Effective June 30, 2018, the Policy Benchmark is 3.3% S&P/TSX Index + 2.5% S&P/TSX 60 + 5.3% S&P 500 Index ($USD) + 8.9% MSCI EAFE Index ($CAN) + 4.4% MSCI Emerging Markets ($CAN) + 11.5% MSCI World ($CAN) +15.5% FTSE TMX Canada Universe Bond + 15.4% 3 Month Bankers Acceptance + 33.2% Minimum Target Return.

Fund returns are shown net of fees and expenses

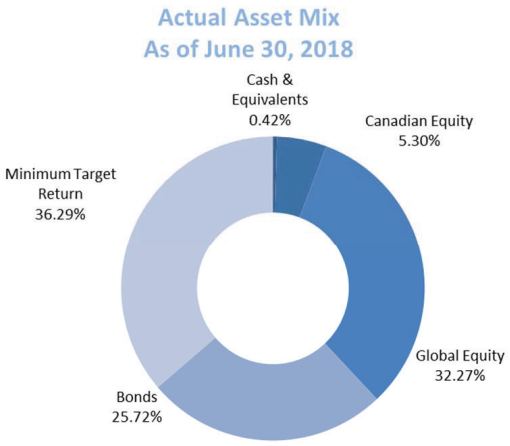
Since Inception Performance

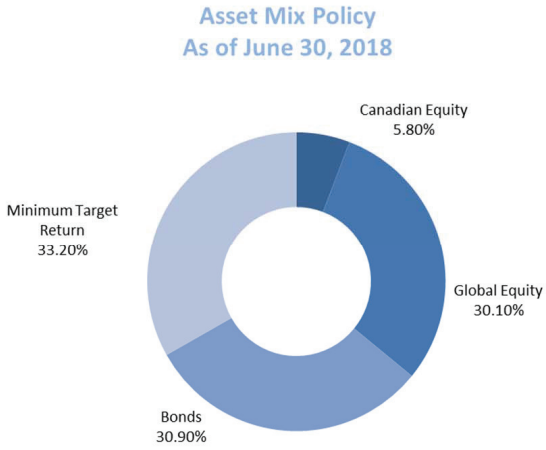


In dollar terms, the fund has grown $614 million in excess of the policy benchmark since inception.

Fund returns are shown net of fees and expenses

Asset Mix – June 30, 2018





*Effective June 30, 2018, the Policy Benchmark is 3.3% S&P/TSX Index + 2.5% S&P/TSX 60 + 5.3% S&P 500 Index ($USD) + 8.9% MSCI EAFE Index ($CAN) + 4.4% MSCI Emerging Markets ($CAN) + 11.5% MSCI World ($CAN) +15.5% FTSE TMX Canada Universe Bond + 15.4% 3 Month Bankers Acceptance + 33.2% Minimum Target Return.

Fund returns are shown net of fees and expenses

Equity Market Index Returns

Indexes	Q2 2018	YTD	1-Year Ending June 30, 2018	4-Year Ending June 30, 2018
Canadian Equity (S&P/TSX Composite Index)	6.77%	1.95%	10.41%	4.87%
US Equity (S&P 500 C$)	5.54%	7.77%	15.85%	16.79%
US Equity (S&P 500 U$)	3.43%	2.65%	14.37%	10.79%
EAFE Equity (MSCI EAFE C$)	0.77%	2.10%	8.22%	8.10%
Emerging Markets (MSCI EM C$)	-6.09%	-2.00%	9.60%	8.38%
World Equity (MSCI World C$)	3.80%	5.44%	12.52%	12.45%

*Source: Northern Trust

In the second quarter:

- Canadian equity markets posted a strong performance in Q2, driven by the sharp rebound in both the energy and health care sectors, as well as ongoing strength in the technology sector.
- US equities advanced in Q2, with positive earnings momentum and supportive economic data.
- Emerging market equities recorded sharp falls in Q2 with escalating trade tensions contributing to weakness across a number of Asian emerging markets.

Equity – Q2 Summary

- The MT's Equity portfolio returned 2.02% during the quarter, underperforming the equity policy benchmark return of 2.29% by -0.27%, primarily due to underperforming Canadian and global equities.

MT Equity	Q2 2018	Benchmark	Relative Performance
Canadian Equity (S&P/TSX Composite Index)**	5.73%	6.91%	-1.18%
US Equity (S&P 500 U$)	4.43%	3.43%	1.00%
EAFE Equity (MSCI EAFE C$)	0.91%	0.77%	0.14%
Emerging Markets (MSCI EM C$)	-5.50%	-6.09%	0.59%
World Equity (MSCI World C$)	3.16%	3.80%	-0.64%
MT Equity Total	2.02%	2.29%	-0.27%

*Source: Northern Trust
**Canadian Equity is a blended index of S&P TSX 60 and S&P/TSX Composite

Bond Market Index Returns

Bond Indexes	Q2 2018	YTD	1-Year Ending June 30, 2018	4-Year Ending June 30, 2018
Canadian Government Bonds (FTSE TMX Canada Universe Government)	0.55%	0.59%	0.60%	2.94%
Canadian Universe Bonds (FTSE TMX Canada Universe Bond)	0.51%	0.61%	0.76%	3.03%
Canadian Corporate Bonds (FTSE TMX Canada Universe Corporate)	0.42%	0.70%	1.21%	3.30%

*Source: Northern Trust

- Corporate bonds have outperformed Government Bonds and the broader Universe over the 1-year and 4-year periods.
- Government bonds have outperformed Universe and Corporate bonds over the Q2 period.
- For Q2, the Canadian bond market experienced volatility, particularly at the long end of the yield curve, but ended in positive territory with long-term bonds outperforming short-term counterparts and the yield curve flattening slightly. Corporate credit spreads widened slightly during the quarter, particularly across short and medium-term bonds.

Fixed Income – Q2 Summary

- The MT's diversified Fixed Income portfolio earned 0.72%, which outperformed its benchmark return of 0.48% by +0.24%.

MT Fixed Income	Q2 2018	Benchmark	Relative Performance
Universe Bond	0.91%	0.51%	0.40%
Canadian Corporate Bond	0.86%	0.28%	0.58%
Government Bond	0.94%	0.04%	0.90%
Global Credit Absolute Return	0.31%	0.42%	-0.11%
MT Fixed Income Total	0.72%	0.48%	0.24%

*Source: Northern Trust

- Strong performance by our government fixed income, universe bonds and Canadian corporate bond portfolios boosted returns relative to the overall fixed income benchmark.
- Global credit portfolios underperformed their benchmarks in the quarter.

MTR –Summary

- The Minimum Target Return portfolio (private investment portfolio) returned 0.96% in Q2, versus a benchmark of 1.57%, underperforming by -0.61%.

	YTD	1-Year Ending June 30, 2018	4-Year Ending June 30, 2018
MTR Return	4.29%	12.21%	12.76%
Policy Benchmark	3.16%	6.42%	6.48%
Excess Return	1.13%	5.79%	6.28%

The policy benchmark for the private investment portfolio is the Going Concern Discount rate. The 2017 rate 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.

YTD Return

- YTD return of MT: 3.4%

- The Plan is required to achieve a net of fees return of approximately -3.0%** during 2018 in order to avoid any changes to benefits and maintain the current contribution rate buffer (assuming actual liabilities are in line with assumptions from last year's valuation)

**As at August 31, 2018*
*** The Minimum Required Return is based on a 6.4% expected rate of return*

Stress Testing

Scenario Analysis

- Of the scenarios we analyze, the four that show the greatest potential downside return risk to the Master Trust include:

Scenario	Projected Return of Master Trust
Equities Down 5%	-2.01%
CAD increase by 10% vs USD	-2.05%
US interest rates decrease by 0.25%	-0.73%
Oil price drops by 10%	-0.19%

Liquidity

	Estimated 2018 Amounts ($ mln)
Contributions**	$ 80.6
Dividend & Distribution Income	$ 17.5
Interest Income	$ 9.9
Other Income	$ 0.4
Benefit Payments**	-$ 101.2
Expenses	-$ 5.1
Total Annual Net CF	**$ 2.1**
Liquid Investments*	$ 1,288.7
Actual Net Distributions	$ 91.7
Projected Net Distributions	$ 45.8
Actual Net Capital Calls	-$ 55.9
Projected Net Capital Calls	-$ 38.0
Total CF + Liquid Investments + Private Sales – Capital Calls	**$ 1,334.4**

** Liquid investments as at August 13, 2018. Includes all publicly traded equity and fixed income investments*
*** Contributions are derived from Contribution Planner filed with Northern Trust. Benefits are based on monthly average January to June 2018 with a conservative estimate for lump sum payments*
**** Income and expense estimates based on actual amounts from January to June 2018, annualized for the full year*

Halifax Water
Halifax Regional Water Commission

ITEM # 7-I
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services
Allan Campbell, B.Comm, CPA, CMA, Manager, Finance

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

DATE: September 17, 2018

SUBJECT: **Halifax Regional Water Commission Employees' Pension Plan Financial Report – 2nd Quarter (Q2), 2018**

INFORMATION REPORT

ORIGIN

Financial reporting for the Halifax Regional Water Commission Employees' Pension Plan (hereinafter called the "Plan").

BACKGROUND

The Board is required to review the periodic (quarterly) financial results of the Plan throughout the year.

DISCUSSION

The attached statement of changes in net assets available for benefits (Appendix A) outlines the annual budget for the Plan and actual financial performance to Q2 (January 1 to June 30, 2018). Favourable or unfavourable variances reported compare actual results to prorated budget amounts (50% = 6 months/12 months), which serves as a benchmark for the six (6) month period in 2018. Yearend audited results for 2016 and 2017 are shown for comparative purposes.

As shown on the statement of changes in net assets available for benefits, net assets available for benefits have increased by $4.4 million for the six (6) month period ending June 30, 2018. The annual budget for 2018 forecasted an increase in net assets available of $10.3 million. Actual results for the period of $4.4 million compared to the benchmark of $5.2 million results in an unfavourable variance in the amount of $0.7 million.

The annual budget forecasted revenue of $8.8 million. Revenue for the period totaled $3.3 million, which when compared to the benchmark of $4.4 million results in an unfavourable variance of $1.1 million. Revenue is affected largely by the performance of the HRM Master Trust, and change tends to be more volatile compared to contributions and expenses of the Plan. This variance is attributed directly to the fact the actual increase in the fair value of the investment assets was lower than expected. The increase for the period totaled $1.9 million compared to the benchmark of $3.3 million, a difference of -$1.4 million or -43%. Investment income for the period performed above expectations, showing a favorable variance of $0.3 million or 25%.

Contributions of $3.1 million are tracking as expected, showing a small, favourable variance of $17.5 thousand.

Expenses of $1.9 million for the period are lower than the benchmark of $2.3 million resulting in a favourable variance of $0.4 million or 16%. The main contributor to this favourable variance is termination benefit payments of $7.0 thousand year to date, which came in considerably lower than the benchmark of $350.0 thousand. The remainder of the variance is due to the timing of administrative expenses, which totaled $48.5 for the period compared to the benchmark of $88.5 thousand.

SERVICE STANDARDS

The administrator has begun to track and report on Regulatory Filing Requirements, Administrative Reporting Requirements and Service Standards for actuarial calculation requests. 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 30th, 2018 have been attached as Appendix D. The intent of the Service Standards Report is to set a standard number of days for which calculations can be provided to Members when actuarial calculations are requested. The service standard includes both estimated number of days required by the current actuarial services provider, Eckler Partners Ltd., as well as estimated Halifax Water staff time.

The overall results outlined for Q2 as reported in Appendix D show, out of 9 Member requests, only 2, or 22.2% were delivered within the standard days proposed under the threshold limits. Response time of the actuary was not consistent throughout the period,

ranging from 6 to 32 days compared to a standard of 8 days for the categories reported. For the actuary, average service days for Retirement Estimates and Termination Estimates (standard) were 11.7 days and 14.7 days respectively. Likewise for administrative staff, response time ranged from 5 to 27 days compared to the standard of 7 days for the categories reported, with an average response time of 10.3 days for Retirement Estimates, and 15.5 days for Termination Estimates (standard).

Considering this is the first reporting scheme, especially with respect to the Service Standards, results will continue to be monitored and evaluated over the coming months to obtain a larger data sample with standards being adjusted if necessary, to reflect the realities and special circumstances factoring into processing Member requests.

ATTACHMENTS

APPENDIX A – Financial Report:
Statement of changes in net assets available for benefits, for the six (6) month period ended June 30, 2018

APPENDIX B – Regulatory Filing Requirements – 2018

APPENDIX C – Administrative Reporting Requirements – 2018

APPENDIX D – Service Standards Report - 2018

Report Prepared by: *Original Signed By:*

Michelle Bennett, B.Comm, Accountant 902-490-5242

Heather Britten, B.Comm, Quality Assurance Officer 902-490-1895

Halifax Regional Water Commission Employees' Pension Plan
Statement of changes in net assets available for benefits
For the six (6) month period ended
Benchmark *50%*

	June 30, 2018						
				Variance			
			Prorated	Actual versus Prorated Budget			
	2018		Budget	Favourable (Unfavourable)		Actual	Actual
	Budget	Actual	50%	$	%	2017	2016
Revenue[1]							
Net investment income:							
Total investment income	$2,340,000	$1,468,091	*$1,170,000*	*$298,091*	*25%*	$2,622,024	$2,389,377
Investment manager fees	($166,000)	($79,071)	*-$83,000*	*$3,929*	*-5%*	($146,420)	($138,922)
Increase (decrease) in the fair value of inve	$6,590,000	$1,892,855	*$3,295,000*	*-$1,402,145*	*-43%*	$8,712,459	$4,056,258
	$8,764,000	**$3,281,875**	*$4,382,000*	*-$1,100,125*	***-25%***	**$11,188,063**	**$6,306,713**
Contributions[2]							
Participants:							
Current service (inc AVC's)	$2,801,000	$1,410,903	*$1,400,500*	*$10,403*	*1%*	$2,665,078	$2,484,448
Sponsors:							
Current service (inc LTD)	$2,548,000	$1,280,973	*$1,274,000*	*$6,973*	*1%*	$2,422,527	$2,265,591
Unfunded liability	$825,000	$412,610	*$412,500*	*$110*	*0%*	$825,200	$825,200
	$6,174,000	**$3,104,487**	*$3,087,000*	*$17,487*	***1%***	**$5,912,805**	**$5,575,239**
Expenses[3]							
Benefit payments:							
Benefit payments	$3,754,000	$1,891,584	*$1,877,000*	*-$14,584*	*-1%*	$3,738,659	$3,536,894
Termination payments	$700,000	$6,950	*$350,000*	*$343,050*	*98%*	$314,591	$992,572
Death benefit payments	$0	$0	*$0*	*$0*	*n/a*	$242,767	$509,236
Administrative:							
Actuarial & consulting fees	$100,000	$16,113	*$50,000*	*$33,887*	*68%*	$67,394	$128,676
Audit & accounting fees	$9,000	$0	*$4,500*	*$4,500*	*100%*	$9,283	$15,999
Bank custodian fees	$22,000	$18,690	*$11,000*	*-$7,690*	*-70%*	$20,132	$26,511
Insurance	$9,000	$0	*$4,500*	*$4,500*	*100%*	$8,347	$7,950
Miscellaneous	$15,000	$8,981	*$7,500*	*-$1,481*	*-20%*	$18,965	$14,433
Professional fees	$15,000	$4,727	*$7,500*	*$2,773*	*37%*	$14,623	$12,845
Registration fees	$2,000	$0	*$1,000*	*$1,000*	*100%*	$2,221	$2,158
Training (Trustees/ Administ	$5,000	$0	*$2,500*	*$2,500*	*100%*	$0	$1,127
	$4,631,000	**$1,947,045**	*$2,315,500*	*$368,455*	***16%***	**$4,436,982**	**$5,248,400**
Increase (decrease) in net assets availab	**$10,307,000**	**$4,439,316**	*$5,153,500*	*-$714,184*	***-14%***	**$12,663,886**	**$6,633,551**
Net assets available for benefits, beginn	**$112,657,705**	**$119,731,881**				**$107,067,995**	**$100,434,444**
Increase (decrease) in net assets available for b	**$10,307,000**	**$4,439,316**				**$12,663,886**	**$6,633,551**
Net assets available for benefits, end of	**$122,964,705**	**$124,171,198**				**$119,731,881**	**$107,067,995**

For the purposes of this statement, expenses are reported on a cash basis. Comparative years are reported on an accrual basis as that is how they are reported

Halifax Regional Water Commission Employees' Pension Plan
Regulatory Filing Requirements - 2018
as at September 17, 2018

	Report	Regulatory Body	Filing Deadline	Date last filed		Comments
1	Annual Form 3 - Summary of Contributions	Superintendent of Pensions	60 days after the beginning of each fiscal year	February 12, 2018	DB Plan	Filed directly with the Trustee, Northern Trust, for the DB Plan.
				December 14, 2017	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 28, 2018	DB Plan	CRA requires Northern Trust as the custodian to prepare and file T3 Income Tax Returns each year. Information obtained from HRM Pension Plan quarterly report.
3	Pension Plan Audited Financial Statements	Superintendent of Pensions	6 months after the Plan's fiscal year end	July 11, 2018	DB Plan	Audited financial statements were completed but not approved by the HW Board until after the June 30th deadline. The regulatory body was notified prior to June 30th that the financial statements would be submitted once they were approved by the Board.
				April 13, 2018	DC Plan	Audited financial statements are not prepared for this pension plan. However, Industrial Alliance provieds a Financial Report detailing all pertinant details of the plan. This report was submitted to the regulatory body.
4	Annual Information Returns (AIR)	Superintendent of Pensions	June 30th	April 13, 2018	DB Plan	
				April 13, 2018	DC Plan	
5	Actuarial Valuation*	Superintendent of Pensions Canada Revenue Agency	September 30th	August 26, 2016		
6	Plan Amendments	Superintendent of Pensions Canada Revenue Agency	60 days after the amendment approved by the Board	April 4, 2018	DB Plan	Amendment #11 approved by the Board in March 29, 2018; Submitted to the Superintendent April 4, 2018
		Superintendent of Pensions Canada Revenue Agency	60 days after the amendment approved by the Board	n/a	DC Plan	All documents relating to the registration of the DC Plan were received by the Superintendent October 6, 2017. Amendment #1 was prepared November 17, 2017 by the Administrator pursuant to changes requested to the Plan Text by the Regulator, and filed.

* Actuarial Valuations are required at a minimum every three (3) years.
** Notional Agreements were implemented during 2017 with an effective date for January 1, 2017. Notional Agreements are not registered therefore not subject to reporting requirements to a regulatory body.

Halifax Regional Water Commission Employees' Pension Plan
Administrative Reporting Requirements - 2018
as at September 17, 2018

	Report	Filing Deadline/ Recurrance	Date last filed/ Performed		Comments
1	Pensioners' Payroll	Monthly	September 1, 2018		Pensioners are paid the 1st of each month; no exceptions to report for 2018
2	Contributions to the Trustee	Monthly	September 12, 2018	DB Plan	Remittances due to Northern Trust within 30 days of monthend; no exceptions to report for 2018.
			December 13, 2017	DC Plan	Remittances due to Industrial Alliance within 30 days of monthend; no exceptions to report for 2018.
			n/a	Notional Agreement*	
2	Pension Plan Financial Statements	Quarterly	September 17, 2018	DB Plan	2nd Quarter (January - June 2018)
			n/a	DC Plan	Quarterly statements are not prepared for the DC Plan. A financial report is prepared by Industrial Alliance and that report is filed with the AIR to the regulator.
			n/a	Notional Agreement*	Financial statements not required.
3	Investment Performance Review & Compliance with SIP&P	Quarterly	September 17, 2018	DB Plan	2nd Quarter (January - June 2018) Report prepared quarterly by administration staff for the HW Board of Directors, in conjunction with the quarterly HRM Pension Plan Committee meeting documentation.
4	Annual Pension Statements to Members	June 30th	June 18, 2018	DB Plan	
			June 18, 2018	DC Plan	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018. Members also have access to online, real-time reporting.
			June 18, 2018	Notional Agreement*	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018.
5	Fiduciary Liability Insurance	Annually	November 27, 2017	DB Plan	Reviewed and renewed annually by administration staff. The policy period expires November 30 each year.

* Notional Agreements were implemented during 2017 with an effective date for January 1, 2017. Notional Agreements are not registered therefore not subject to reporting requirements to a regulatory body.

Halifax Regional Water Commission Employees' Pension Plan
Service Standards Report - 2018

Quarter 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	15	Business Days	3	2	33%	11.7	3	2	33%	10.3	22.0
Marriage Breakdown Calculations	25	Business Days	0	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!	#DIV/0!	#DIV/0!
Post-Retirement Death Letter	10	Business Days	0	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!	#DIV/0!	#DIV/0!
Pre-Retirement Death Benefit	25	Business Days	0	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!	#DIV/0!	#DIV/0!
Termination Estimates/ Calculations											
- Standard	15	Business Days	6	6	0%	14.7	6	4	33%	15.5	30.2
- Non Standard (incl RTAs)	25	Business Days	0	0	#DIV/0!	#DIV/0!	0	0	#DIV/0!	#DIV/0!	#DIV/0!
Volume-Weighted Average			**9**	**8**	**11%**	**#DIV/0!**	**9**	**6**	**33%**	**#DIV/0!**	

	Total # Completed	**# Past Standard**	**% within Standard**
Combined Volume-Weighted Average	**9**	**7**	**22.2%**

Halifax Water
Halifax Regional Water Commission

ITEM # 8-I
HRWC Board
September 27, 2018

TO: Ray Ritcey, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Reid Campbell, Director Water Services

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

DATE: September 20, 2018

SUBJECT: **Lake Major Water Levels**

INFORMATION REPORT

ORIGIN

Halifax Water declared mandatory water use restrictions on September 10, 2018, for customers served by the Lake Major water supply.

BACKGROUND

Operation of the Lake Major dam is regulated by the Water Withdrawal Approval for Lake Major issued by Nova Scotia Environment (NSE). The Approval requires 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 existing dam provides 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 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.

DISCUSSION

This year is proving to also be an unusual dry summer, although not as severe as 2016. The attached graph shows lake levels for the last five years. We are pacing about three weeks ahead of 2016 in the decline of water levels. On September 7, Halifax Water staff determined that, at the current rate of decline, it would be 10-14 days, lacking significant rainfall before the siphons would cease to operate. Mandatory water use restrictions were declared on September 10, 2018 to conserve water and prolong the operability of the siphons.

On September 11, 2018, 11 mm of rain was recorded at the Shearwater weather station. This allowed the lake levels to rise by about 2 cm which provided an additional 2-3 days before the siphons would fail. On September 18, 2018 14 mm of rain was reported at Shearwater, however, this did not result in a measurable increase in lake levels.

Since declaration of the restrictions, water demand as dropped by approximately 1.5 ML/day (4-5%). As of the writing of this summary, there are 6-8 days of operation remaining on the siphons, lacking any additional rainfall. The fourteen day weather forecast predicts 30 – 40 mm of rain in the next two weeks, however most of this is in the later days of the forecast which are subject to change.

Should the siphons cease operating before lake levels begin recovering, NSE will no doubt require Halifax Water to find another means to provide maintenance flows. One of the most practical solutions will be to use pumping equipment on site, used by the dam contractor, to pump groundwater from within the cofferdam over the existing dam to the downstream. NSE has questions related to monitoring and testing and we are working through those with NSE.

In 2016, we were also concerned about our ability to maintain pumping operations at the Lake Major pumping station due to low lake levels. At the current rate of lake level decline, we have in excess of 60 days' supply before this becomes an issue. The lake responds quickly to significant precipitation and with the expectation of Fall precipitation, we are not anticipating having to take any action to maintain pumping. Should the drought continue, we will take contingent action when the available water supply gets to about 2-3 weeks of reserve to implement plans developed in 2016.

In summary, the main driver for the water use restrictions is the requirement to provide maintenance flow combined with the shallow conditions immediately upstream of the existing dam. The new dam will provide the ability to provide maintenance flow at lake depth approximately 1.5 metres deeper than the current dam elevation. As a result, we do not anticipate future restrictions in relation to current environmental conditions, once the new dam is commissioned.

Report Prepared by: *Original Signed By:*

Reid Campbell, M.Eng., P.Eng., Director, Water Services, 902-441-1048

ITEM # 8-I
HRWC Board
September 27, 2018
ATTACHMENT