

The logo for Halifax Water, featuring a stylized blue 'H' with a white wave-like element on the left, followed by the words 'Halifax' and 'Water' in an orange serif font.

# Halifax Water

Nineteenth  
Annual Report  
March 31, 2015

***NEXUS***



Cover image: Last blade erected at Pockwock wind turbine farm



# *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 the 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.*



# Letter from the Chair



November 16, 2015  
Mayor Mike Savage and Members of Council

Re: 2014/15 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, 2015. The 2014/15 fiscal year saw a continuation of several large capital projects directly linked to the Integrated Resource Plan (IRP) to position the utility for service and growth. Key projects included the renewal of the Pockwock transmission main along Kearney Lake Road from Bluewater Road to Hammonds Plains Road and the installation of a new trunk sewer to transfer sewage from the Beechville Lakeside Timberlea area to the Halifax sewershed for ultimate treatment at the Halifax plant downtown. The latter project was a clear example of using regional assets to solve regional problems, all at the best life cycle cost. Both projects were completed on schedule and under budget.

Following the utility's application last fall, the Nova Scotia Utility and Review Board (NSUARB) rendered a decision in April this year approving rate increases for water and wastewater service on May 1, 2015, with another increase on April 1, 2016. Halifax Water did not apply for an increase in stormwater rates as revenues were a close match with expenditures. After a review of the first two years of administering stormwater rates and the current approach to cost of service, Halifax Water filed an application with the NSUARB on October 31, 2015 to look at refinements to the cost of service methodology to ensure fair and equitable treatment of customers. Consistent with industry best practice, Halifax Water is also proposing to introduce a credit system for stormwater service to incent customers to manage stormwater on their property to lessen the impact of peak flows on Halifax Water infrastructure.

The biggest drivers for the water and wastewater rate increases were debt servicing, depreciation expense, and increasing pension costs. Although the IRP completed in October, 2012 called for higher levels of capital expenditures to address the infrastructure deficit, Halifax Water introduced the concept of gradualism during the last rate application. This was done with the recognition that affordability is an issue for many customers and some will need time to adjust to future rate increases. To help maintain and stabilize rates, cost containment remains an on-going focus for the utility. For the 2014/15 fiscal year, cost containment initiatives culminated in a reduction of \$1.7 million in expenditures. Many of these initiatives centred on the reduction of energy and chemicals utilized in the treatment processes. Halifax Water also leveraged its resources to bring in additional revenue for the utility with the lease of land for a wind farm near Pockwock Lake and the sale of electricity with the installation of an in-line turbine at a control chamber in Bedford. The in-line turbine project was carried out under the provincial COMFIT program with support funding from the Water Research Foundation and Nova Scotia Environment. The utility also holds a COMFIT certificate for a combined heat and power project at the Mill Cove wastewater treatment facility with the intention to harness methane from the digester and convert it to electricity and supplementary heat for the treatment facility.

Efforts also continued last year to secure funding from other levels of government to mitigate impacts to ratepayers. To that end, Halifax Water was successful with its application to the federal and provincial governments to cost share the upgrade and expansion of the Aerotech Wastewater Treatment Facility which is the utility's highest priority capital project. This project will facilitate growth at the Halifax Stanfield International Airport and Aerotech Business Park and bring the treatment plant into compliance with the new federal wastewater system effluent regulations.

Although funding of the wastewater infrastructure deficit continues to be the main focus of Halifax Water, last year saw considerable investment in water infrastructure. In addition to the completion of the Pockwock transmission main project on Kearney Lake Road, engineering staff awarded a contract for the design work to replace the dam at Lake Major which supplies water to the greater Dartmouth area. The need for the dam replacement became more evident after a rainstorm in December 2014 necessitated emergency repairs to the fish ladder in January 2015. The emergency response was well co-ordinated and well supported by several Halifax departments, RCMP and the Halifax Regional Ground Search and Rescue.

The utility finished the year with a financial outcome better than budget with retained earnings of \$6.9 million compared to a loss of \$4.9 million in 2013/14 for an accumulated operating surplus of \$2.9 million as of March 31, 2015. Long term debt increased by \$15.6 million with total outstanding debt at \$208.2 million culminating in a debt service ratio of 21.3%, a drop from 22.9% in 2013/14 and well below the maximum target threshold of 35%. In recognition of ongoing financial pressures on the Halifax Water pension plan, this became the focal point of recent collective bargaining which resulted in a labour disruption during the summer of 2015. We are pleased to report that an agreement was reached to achieve sustainability of the pension plan.

The focus for the current year will be the design for the upgrade and expansion of the Aerotech wastewater treatment facility, decommissioning of the Belmont treatment facility in Dartmouth and advances in wet weather management, consistent with the IRP. Staff will also be pursuing enhancements to the customer care centre at Cowie Hill taking on an expanded mandate to receive all water, wastewater and stormwater calls to improve the customer service experience.

As I take on the role of Chair of the Board, I want to thank my fellow Commissioners for the opportunity to serve for the betterment of our customers and the environment we protect. We also recognize the ongoing support of Council who have entrusted Halifax Water with the stewardship responsibility for assets and resources that are critical to the sustainability and economic growth of our communities.

Respectfully Submitted,



Ray Ritcey,  
Chair of the Board

# NEXUS



Halifax Water has long recognized the synergy in delivering water, wastewater and stormwater services for the sustainability of the communities we serve. It is also becoming clear that there is a nexus with energy associated with these services which include stewardship responsibility from the source to the tap and back to the source again. Along this path there are many opportunities to harness or reduce energy. These include advanced methods to control leakage in water distribution systems or reduce inflow and infiltration in wastewater collection systems. The resources at hand can also host wind farms, produce energy from gravity flow within the distribution system or capture methane gas from the wastewater treatment process to produce heat and power. Halifax Water staff continue to be at the forefront of adopting new and innovative technology to fully realize the water/energy nexus in a social, financial and environmentally responsible manner. The future looks bright.

A handwritten signature in black ink that reads "Carl Yates". The signature is fluid and cursive, with a long, sweeping underline that extends under the word "Yates".

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



## Board of Commissioners

March 31, 2015



**Ken Meech, MPA**  
Chair



**Councillor  
Russell Walker**  
Vice Chair



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



**Cathie O'Toole, BA, MBA,  
CPA/CGA**  
Director, Finance and Customer Service



**Councillor  
David Hendsbee**  
Commissioner



**Councillor  
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**Jamie Hannam, MBA, P.Eng.**  
Director, Engineering and  
Information Services



**Kenda MacKenzie, P.Eng.**  
Director, Environmental  
Services



**Mayor Mike Savage**  
Commissioner



**Richard Butts**  
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**Susheel Arora, M.A.Sc., P.Eng.**  
Director, Wastewater and  
Stormwater Services



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



**Ray Ritcey, BComm, MBA,  
CPA/CGA**  
Commissioner



**Don Mason, P.Eng., MCIP**  
Commissioner



**Eric Rowley, B.Comm.**  
Director, Human Resources

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### How to reach us:

For more information about Halifax Water and its services, visit our website at [www.halifaxwater.ca](http://www.halifaxwater.ca), contact Customer Service at (902) 490-4820, e-mail us at [Cust\\_Inq@halifaxwater.ca](mailto:Cust_Inq@halifaxwater.ca), fax us at (902) 490-4749, or write us at P.O. Box 8388 RPO CSC, Halifax, N.S., B3K 5M1. You can also reach us via Twitter at @HalifaxWater.

# General Information of Utility

Year Ended March 31, 2015

## WATER

### Precipitation

Measured at Pockwock	
Rainfall	1 476.8 mm
Snowfall	467.7 cm
Measured at Lake Major	
Rainfall	1 535.4 mm
Snowfall	351.2 cm

### Sources of Supply and Watershed Areas

Pockwock Lake	5 661 ha
Safe Yield	145 500 m <sup>3</sup> /day
Chain Lake	206 ha
Safe Yield	4 500 m <sup>3</sup> /day
Lake Major	6 944 ha
Safe Yield	65 900 m <sup>3</sup> /day
Lake Lemont/Topsail	346 ha
Safe Yield	4 500 m <sup>3</sup> /day
Bennery Lake	644 ha
Safe Yield	2 300 m <sup>3</sup> /day

### Water Supply Production (Cubic Metres)

Pockwock Lake	29 960 347
Lake Major	13 298 770
Bennery Lake	303 692
Small Systems	55 048
<b>Total</b>	<b>43 617 857</b>

### Storage Reservoirs (Elevation Above Sea Level)

Lake Major	( 60 m)	9 092 m <sup>3</sup>
Pockwock	(170 m)	13 600 m <sup>3</sup>
Geizer 158	(158 m)	36 400 m <sup>3</sup>
Geizer 123	(123 m)	31 800 m <sup>3</sup>
Cowie	(113 m)	11 400 m <sup>3</sup>
Robie	( 82 m)	15 900 m <sup>3</sup>
Lakeside		
/Timberlea	(119 m)	5 455 m <sup>3</sup>
Mount Edward 1	(119 m)	22 728 m <sup>3</sup>
Mount Edward 2	(119 m)	22 728 m <sup>3</sup>
Akerley Blvd.	(119 m)	37 727 m <sup>3</sup>
North Preston	(125 m)	1 659 m <sup>3</sup>
Meadowbrook	( 95 m)	9 091 m <sup>3</sup>
Sampson	(123 m)	12 273 m <sup>3</sup>
Stokil	(123 m)	23 636 m <sup>3</sup>
Waverley	( 86 m)	1 364 m <sup>3</sup>
Middle		
Musquodoboit	(81m)	275 m <sup>3</sup>
Aerotech	(174 m)	4 085 m <sup>3</sup>
Beaver Bank	(156 m)	6 937 m <sup>3</sup>

**Total Storage Capacity 259 213 m<sup>3</sup>**

### Transmission and Distribution System

Size of mains	19 mm - 1 500 mm
Total water mains	1 567 km
Main valves	14 773
Fire hydrants	8 199
Distribution Pumping Stations	22
Pressure Control/Flow	
Meter Chambers	134

### Services and Meters

Water	
Sprinkler services	
(25 mm - 300 mm)	2 132
Supply services	
(10 mm - 400 mm)	86 514
Meters	
(15 mm - 250 mm)	82 658
Wastewater services	79 466

### Treatment Processes

#### J. Douglas Kline Water Supply Plant

Source	- Pockwock Lake
Process	- Dual media direct filtration
	- Iron and manganese removal
8 filters	143 m <sup>2</sup> /each
Max. flow rate	0.137 m <sup>3</sup> /m <sup>2</sup> /min
Design capacity	227 000 m <sup>3</sup> /day
Average production	82 083 m <sup>3</sup> /day

#### Lake Major Water Supply Plant

Source	- Lake Major
Process	- Upflow clarification and trimedia filtration
	- Iron and manganese removal
4 filters	85 m <sup>2</sup> /each
Max. flow rate	0.192 m <sup>3</sup> /m <sup>2</sup> /min
Design capacity	94 000 m <sup>3</sup> /day
Average production	36 435 m <sup>3</sup> /day

#### Bennery Lake

Source	- Bennery Lake
Process	- Manganese removal, sedimentation, dual media filtration
2 filters	26.65 m <sup>2</sup> /each
Max. flow capacity	0.10/m <sup>3</sup> /m <sup>2</sup> /min
Design capacity	7 950 m <sup>3</sup> /day
Average production	832 m <sup>3</sup> /day

### Bomont

Source - Shubenacadie River  
 Process - Nano Filtration / Ionic Exchange Resin  
 Average production - bulk water supply

### Collins Park

Source - Lake Fletcher  
 Process - Ultra Filtration / Nano Filtration  
 Average production 38 m<sup>3</sup>/day

### Middle Musquodoboit

Source- Musquodoboit River  
 Process- Raw water infiltration gallery  
 - Ultra Filtration / Nano Filtration  
 Average production 52 m<sup>3</sup>/day

### Five Island Lake

Source - 1 well  
 Process - Ultraviolet disinfection  
 Average production 8 m<sup>3</sup>/day

### Silver Sands

Source - 2 wells  
 Process - Green sand pressure filters  
 -Iron and manganese removal  
 Average production 28 m<sup>3</sup>/day

### Miller Lake

Source - 3 wells  
 Process - Arsenic removal with G2 Media  
 No Production - bulk water supply

### Population Served

Halifax Municipality  
 Estimated population served 355 000  
 Consumption per capita (all customers) 285 litres/day

### Glossary of Terms

ha - hectare  
 m - metre  
 m<sup>2</sup> - square metre  
 m<sup>3</sup> - cubic metre  
 mm - millimetre  
 km - kilometre  
 cm - centimetre



# General Information of Utility

Year Ended March 31, 2015

## WASTEWATER/STORMWATER

### Treatment Processes

#### Halifax

Process - Enhanced Primary - UV  
Average production - 139 900 m<sup>3</sup>/day  
Area served - Halifax  
Receiving water - Halifax Harbour

#### Dartmouth

Process - Enhanced Primary - UV  
Average production - 83 800 m<sup>3</sup>/day  
Area served - Dartmouth  
Receiving water - Halifax Harbour

#### Herring Cove

Process - Enhanced Primary - UV  
Average production - 28 500 m<sup>3</sup>/day  
Area served - Halifax-Herring Cove  
Receiving water - Halifax Harbour (Outer)

#### Mill Cove

Process - Secondary - UV / Pure oxygen  
Activated sludge  
Average production - 28 400 m<sup>3</sup>/day  
Area served - Bedford-Sackville  
Receiving water - Bedford Basin

#### Eastern Passage

Process - Secondary - UV / Pure oxygen  
Activated sludge  
Average production - 25 000 m<sup>3</sup>/day  
Area served - Cole Harbour-Eastern Passage  
Receiving water - Halifax Harbour

#### Timberlea

Process - Secondary - Sodium  
Hypochlorite / RBC  
Average production - 4 540 m<sup>3</sup>/day  
Area served - Beechville-Lakeside  
-Timberlea  
Receiving water - Nine Mile River

#### Aerotech

Process - Tertiary - UV /SBR  
Average production - 1 360 m<sup>3</sup>/day  
Area served - Aerotech Park-Airport  
Receiving water - Johnson River

#### Springfield Lake

Process - Secondary - Sodium  
Hypochlorite/Activated sludge  
Average production - 543 m<sup>3</sup>/day  
Area served - Springfield Lake  
Receiving water - Lisle Lake

#### Fall River

Process - Tertiary - UV / Activated sludge  
and post filtration  
Average production - 454.5 m<sup>3</sup>/day  
Area served - Lockview-McPherson Road  
Receiving water - Lake Fletcher

#### North Preston

Process - Tertiary - UV / SBR and  
engineered wetland  
Average production - 345 m<sup>3</sup>/day  
Area served - North Preston  
Receiving water - Winder Lake

#### Middle Musquodoboit

Process - Secondary - UV / RBC  
Average production - 114 m<sup>3</sup>/day  
Area served - Middle Musquodoboit  
Receiving water - Musquodoboit River

#### Uplands Park

Process - Tertiary - UV / Trickling filter  
and wetland  
Average production - 91 m<sup>3</sup>/day  
Area served - Uplands Park  
Receiving water - Sandy Lake

#### Wellington

Process - Tertiary - UV / Activated sludge  
/reed bed  
Average production - 68 m<sup>3</sup>/day  
Area served - Wellington  
Receiving water - Grand Lake

#### Frame

Process - Secondary - Sodium  
Hypochlorite / Extended Aeration  
Average production - 80 m<sup>3</sup>/day  
Area served - Frame Sub-Division  
Receiving water - Lake William

#### Belmont

Process - Secondary - Sodium Hypochlorate  
Extended Aeration  
Average production - 114 m<sup>3</sup>/day  
Area served - Belmont Sub-Division  
Receiving water - Halifax Harbour

RBC = Rotating Biological Contactor;  
SBR = Sequencing Batch reactor;  
UV = Ultra Violet

#### Wastewater & Stormwater Collection System

Size of pipes	200 mm - 3 400 mm
Total sewer length	2 402 km
Total manholes	37 869
Total Pumping Stations	170
Total ditch length	496 km
Culverts	2 170
Holding Tanks and Retention Ponds	54 (12-244 000 m <sup>3</sup> )

# FINANCIAL OVERVIEW

Abbreviated Financial Information

March 31, 2015

(in thousands)

## ASSETS

### Fixed

Utility Plant in Service at Cost	\$	1,328,988
Accumulated Depreciation	\$	(315,223)

### Net Book Value

\$ 1,013,765

### Capital Work in Progress

\$ 41,423

### Regulatory Asset

\$ 3,772

### Current

\$ 75,117

## TOTAL ASSETS

**\$ 1,134,077**

## LIABILITIES

Long Term Debt \$ 208,231

Other Than Long Term Debt \$ 61,663

## TOTAL LIABILITIES

**\$ 269,894**

## EQUITY

Special Purpose Reserves \$ 24,875

Contributed Capital Surplus \$ 823,992

Operating Surplus used to Fund Capital, Cumulative \$ 12,380

**\$ 861,247**

Operating Surplus (Deficit) April 1, 2014

\$ (3,960)

## 2014/15 OPERATIONS

Operating Revenue \$ 130,320

Financial Revenue \$ 3,061

Revenue From all Sources \$ 133,381

### Expenditures

Operating Expenses \$ 76,433

Depreciation \$ 17,954

Grant in lieu of taxes HRM \$ 4,340

Financial Expenses \$ 27,758 \$ 126,485

Excess of Revenue over Expenditures \$ 6,896

Operating Surplus used to Fund Capital, Current Year \$ (0)

Stewardship Contributions \$ (0)

**Accumulated Operating Surplus March 31, 2015 \$ 2,936**

## TOTAL EQUITY

**\$ 864,183**

## TOTAL LIABILITIES & EQUITY

**\$ 1,134,077**

# High Quality Water

## Keep The Lead Out

Minimizing lead corrosion in the water distribution system is an important focus at Halifax Water.

Recently, Halifax Water turned its attention to evaluating corrosion inhibitors used to minimize lead release in the distribution system. Based on a review of Halifax Water's corrosion control strategy and recommendations from industry experts, Halifax Water decided to change corrosion inhibitors. It is not anticipated that the switch in corrosion control inhibitors will impact water quality (color, turbidity, iron precipitation) during product changeover based on pilot scale work completed by our research partner, Dalhousie University.

As a next step, Halifax Water plans to optimize the dosage of this new product to minimize lead release in the water distribution system.

In February 2015, research completed by Dr. Alisha Knowles (Halifax Water's

- Water Quality Manager) at the JD Kline (Pockwock) Water Supply Plant, in collaboration with Dr. Graham Gagnon (Dalhousie University) and Dr. Marc Edwards (Virginia Tech) on the secondary impacts on corrosion in distribution systems was published in the Journal of Environmental Health and Science. The research results help identify the best combinations of water treatment and corrosion control to minimize lead release in the water distribution system. Taking part in research helps keep Halifax Water on the leading edge of water science and drives treatment improvement opportunities to ensure the highest quality water.

## Geosmin

Geosmin occurrence was more short-lived than previous years, with detection limited to the months of August and October, 2014. Since the first indication of geosmin in the Pockwock water supply in fall 2012, Halifax Water has taken a number of steps to better understand geosmin. These steps include: continuous testing of geosmin levels at



**Continuous research at the Pockwock Pilot plant**

various strategic locations throughout the Pockwock watershed; on-going research at the Pockwock Pilot Plant (a research facility located at the Pockwock water supply plant) in conjunction with Dalhousie University to evaluate treatment strategies to reduce geosmin and other taste and odour compounds in drinking water; and an environmental consulting firm completing a study to better understand the occurrence and cause of geosmin in the Pockwock watershed.

In early 2015, an engineering consulting firm completed a study of geosmin treatment options and associated costs. Three viable treatment alternatives were identified by the consulting firm. Each treatment option requires a significant capital investment and substantial increases in annual operating costs. Pilot testing the various treatment technologies for a minimum of one year is required to improve design criteria and refine capital and operational cost estimates. Pilot testing will also evaluate any potential impacts on the current treatment process. A pilot

## A lead service line being replaced with copper





### J.D. Kline (Pockwock) Water Treatment Facility

testing research plan is currently being developed in conjunction with the engineering consultant and research partners at Dalhousie University.

### Water Treatment Plant Optimization

Each of Halifax Water's large water treatment plants has recently completed, or is currently completing, process optimization studies. The focus of these extensive studies is to address concerns around aging infrastructure, sustainable operation of the water plants and ensure future water quality goals are met.

The Bennery Lake Water Supply Plant, which serves Stanfield Airport and Aerotech Park, is in the process of putting study recommendations into action.

In addition to the studies and research described above, in March 2015, a filtration study was completed for the JD Kline(Pockwock) Water Supply plant. This study focused on filter upgrades to meet future needs and ensure high quality, reliable water service well into the future.

In fall 2014, Halifax Water undertook an optimization study at the Lake Major Water Supply Plant. This study will provide a strategy and recommendations to improve the operation of the facility with a focus on improvements to water quality, operating efficiency, reliability and capacity.

### Fluoride for Public Health

Drinking water fluoridation is safe, cost

effective, and endorsed as a universally accepted practice by all major health authorities in North America. To that end, Halifax Water continues to support the fluoridation of drinking water as a safe public health practice for decreasing dental cavities and protecting oral health. In April 2014, the Halifax Water Board formally endorsed the continuation of fluoridation at the optimal levels recommended by Health Canada.

### Bomont Water Supply Plant

In May 2015, Halifax Water received the Approval to Operate a new water treatment facility supplying 16 homes in Bomont subdivision. Source water for the Bomont Water Supply Plant is the Shubenacadie River where raw water quality is inherently variable. The technologies employed by the new treatment system (Ultra Filtration/Ionic Exchange Resin) were designed to handle these fluctuating conditions. The main objectives of treatment at this facility are the removal of pathogens, organic matter and turbidity, with secondary objectives being metals and nutrients.

### SCADA Master Plan

Halifax Water continued to implement its SCADA (Supervisory Control and Data Acquisition) Master Plan. Two, 50 metre SCADA antenna towers were constructed at the Pockwock (J.D. Kline) and Lake Major Water Treatment facilities. These towers will enable Halifax Water to continue upgrading Remote Terminal Units (RTU's) to a more secure and reliable communications network.

### Excellence in Innovation (Civil Engineering Award)

In May 2014, Halifax Water was awarded the "CSCE-CANAM Excellence in Innovation in Civil Engineering Award" at the Annual General Meeting and Conference of the Canadian Society of Civil Engineering (CSCE). The winning innovation was "Advanced Pressure Management Utilizing Automated Pressure Reducing Valve Control in a Dual Supply District Metered Area." The award recognizes Halifax Water's position as a world leader in water loss control. Since the implementation of an international best practice in 1999, Halifax Water has reduced leakage in the water distribution system by 40 million litres per day, which represents \$600,000 in annual savings. Recognizing the importance of pressure management to control leakage, Halifax Water has conducted research and refined its approach to make further inroads in leakage reduction. The latest technological breakthrough at Halifax Water is a testament to the dedication of staff and their stewardship of water resources.

### Leak detection: an important component of the Water Loss Control Program







**Halifax Water General Manager Carl Yates (second from right) with CSCE-CANAM Excellence in Innovation in Civil Engineering award. From left: CSCE representatives Bob Millburn, Dr. George Akhras and Tony Bégin**

## Watershed Management

In 2014, a 3-year research project between Halifax Water and Dalhousie University concluded. The project was funded through a National Science and Engineering Research Council (NSERC) Strategic Grant: “Source Water Protection in Surface Waters: Evaluating Novel Monitoring Strategies for the Prioritization of Threats and Prevention of Disease Outbreaks”. The research project was undertaken to better understand the potential risks identified in two of Halifax Water’s Source Water Areas, Collins Park and Middle Musquodoboit. The study supports Halifax Water’s Source Water Quality Monitoring Program and Halifax Water’s decision to build robust water treatment plants at both locations.

Late in 2011, higher than normal nitrate levels (still well below acceptable limits) were detected during routine source water quality monitoring near the Middle Musquodoboit water treatment plant intake. The cause was suspected to be a combination of incompatible agricultural practices and lack of treatment capabilities. As a result, in 2012, Halifax Water and the landowner entered into a partnership agreement where Halifax Water leased a portion of the land based on agricultural best practices around municipal water

supplies. By 2014 nitrate levels returned to normal background conditions with minimal impact to the landowner and Halifax Water. This partnership has saved Halifax Water an estimated \$150,000 which would have been necessary to upgrade the water treatment plant to reduce the nitrate levels.

## Adopting Industry Best Practices

In 2013, Halifax Water Joined the Partnership for Safe Water. This program, operated by the American Water Works Association has been available in the United States since 1995. In 2012, it became available across Canada. The program sets a formal process

whereby utilities evaluate their water treatment plants and distribution systems against industry developed best practices. Industry peer-experts then review the evaluation and help plant and distribution system staff develop programs to become a fully optimized plant or water distribution system. Halifax Water will be embarking on the program for each of its large water treatment plants and distribution systems, starting with the East Region distribution system and the Lake Major Water Supply Plant. Staff at the Lake Major Water Supply Plant also began a filter surveillance program. This program requires plant staff to conduct scheduled investigations of how each filter in the plant is operating. The information gained yields important insights into what is going on in a filter “below the surface” and helps plant staff make improvements in filter operation.

## Collins Park Water Treatment Facility



# Responsible Financial Management

Halifax Water received a clean audit for the fiscal year ended March 31, 2015. The financial statements are presented in accordance with the Accounting and Reporting Handbook (Handbook) for Water Utilities as issued by the Nova Scotia Utility and Review Board (NSUARB). A unique aspect of the Handbook is that debt servicing is treated as an expense.

Halifax Water's cash balances and liquidity have increased since 2014. There is a significant amount of capital work underway and a number of large projects that span multiple fiscal years. The most notable is the Beechville/Lakeside/Timberlea wastewater diversion project, which accounts for \$17.4 million of the \$41.4 million value in Capital Work In Progress. The following tables highlight the major projects undertaken during the fiscal year:

<b>Capital Work in Progress</b>	
	Cumulative '000
Lakeside Pumping Station Diversion	\$17,428
Bedford West Collection System CCC	\$5,430
Cow Bay Road Deep Storm Sewer	\$2,777
All other projects	\$15,788
<b>Total</b>	<b>\$41,423</b>

<b>Capital Plant Additions</b>	
	Cumulative '000
Kearney Lake Road Transmission Main	\$7,816
Burnside Park Phase 12-4	\$2,370
Larry Uteck Phase 1-B	\$2,279
All other projects	\$27,340
<b>Total</b>	<b>\$39,804</b>

Plant in Service assets net of Accumulated Depreciation is \$1.0 billion, which is \$8.4 million higher than last

year. A total of 233 Capital Work Orders were closed during the year, representing \$39.8 million in Plant In Service Additions.

Debt is a key component of financing the capital program. Long Term Debt is up \$15.6 million from last year, with new debt of \$33.7 million offset by repayments of \$18.1 million. The debt service ratio is currently 21.3%, an improvement from 22.9% last year as a result of higher revenues offsetting higher levels of debt. This is well below the maximum 35% ratio allowed under the blanket guarantee agreement with Halifax municipality.

This is the first year collecting the new Regional Development Charge (RDC), with \$5.5 million collected since July 2014. As at March 31, 2015 there was \$0.4 million in deferred RDC revenue, which appears as Unearned Revenue.

Consolidated operating revenue of

\$130.3 million is \$18.8 million (16.9% greater than revenue reported for the same year-to-date period last year). Consolidated operating expenses of \$94.4 million are \$4.6 million (5.2% higher than the same period last year).

	<b>Summarized Consolidated Operating Results</b>			
	Actual YTD 2014/15 '000	Actual YTD 2013/14 '000	\$Change	%Change
Operating Revenue	\$130,321	\$111,502	\$18,819	16.9%
Operating Expenses	\$94,381	\$89,737	\$4,645	5.2%
Operating Profit (Loss)	\$35,939	\$21,765	\$14,174	65.1%
Non Operating Revenue	\$3,055	\$3,009	\$47	1.6%
Non Operating Expenses	\$32,099	\$29,736	\$2,362	7.9%
Net Surplus (Deficit)	\$6,896	(\$4,936)	\$11,858	-238.9%

The Net Profit for the year is \$6.9 million, a significant improvement from the prior year loss of just under \$5.0 million.

Water revenues were up \$3.8 million over last year, reflecting an increase in rates partially offset by declining consumption. The water consumption rate increased 23.9% as of April 2014. Base Charge



**Installation of Sanitary Sewer along the Chain of Lakes Trail**





### **Aeration tanks at the expanded and upgraded Eastern Passage WWTF**

rates have not increased, however base charge revenue is up 1.4% as a result of customer growth of 0.4% and the change in the accrued base charge revenue. Wastewater revenue has increased \$12.4 million over the prior year, with Metered Sales accounting for the increase. Stormwater Revenue is up \$2.5 million from the prior year. The change is due to Stormwater charges being in place for the full fiscal year, following increases that took effect April 1, 2014. Stormwater Service Revenue is significantly higher than originally budgeted. At the time the budget was prepared, the billable impervious area was still being finalized for “Stormwater only” customers, and the budget was reduced to allow for anticipated reviews and exemptions. Appeals have been less than what was allowed for compared to the budget reduction.

To help maintain and stabilize rates, Cost Containment remains an on-going focus for the Utility. For 2014/15, cost containment initiatives totaled \$1.7 million, with the most significant impacts in the areas of Facilities/Process (\$1.0 million), General Budget (\$0.7 million) and Human Resource Strategies (\$0.4 million). Facilities/ Process Strategies consist of new initiatives for 2014/15 in the amount of \$0.7 million, with the remaining \$0.3 million representing on-going initiatives carried forward from the prior fiscal year. The new initiatives generated are predominantly through Engineering and Information Services, specifically the Energy Management program. This program implemented cost saving initiatives at various facilities including upgrades to the lighting, heating, ventilation, and air-conditioning (HVAC) and aeration systems. Cost

containment related to lagoon dredging at Aerotech in the amount of \$0.6 million was the most significant savings under General Budget Strategies, and deferrals relating to the hiring of new full time equivalents (FTEs) contributed to savings in Human Resources Strategies.

### **Pension Plan Sustainability**

An actuarial valuation was conducted at January 1, 2014. Although there has been improved performance in investments since the last valuation, the Going Concern deficit increased from (\$14,387,000) to (\$27,110,200) and the plan was only 73% funded from a Going Concern perspective. Two key changes in assumptions have resulted in increased cost and funding requirements for the plan – a declining discount rate and adoption of new mortality tables.



### Cow Bay Road deep storm sewer project

The discount rate decreased from 6.00% to 5.50% to reflect lower expectations for investment returns in the future. There has been a trend amongst public pension plans in recent years to ensure discount rates are conservative and reflective of projected future conditions. This is being driven by Actuarial guidelines.

New mortality tables were published in early 2014 in recognition that Canadians are living longer. The new mortality tables were expected to increase liabilities between 5 – 8% for most defined benefit pension plans.

In response to the 2014 Actuarial Valuation, the Employer and Employee Pension Contributions were increased in the 2014/15 fiscal year, from 10.47% to 12.95%, and additional going concern special payments were made. As a result, pension sustainability was the main focus during collective bargaining with the Canadian Union of Public Employees (CUPE) Locals 227 and 1431.

### International Financial Reporting Standards

There continues to be uncertainty around future financial reporting requirements for the Utility. Halifax Water is a fully regulated government business enterprise, falling under the jurisdiction of the NSUARB. The NSUARB requires that Halifax Water file Financial Statements and rate applications based on the Handbook for Accounting and Reporting for Water Utilities, “The Handbook”. Although the Handbook generally follows Canadian Generally Accepted Accounting Principles (GAAP), there are a couple of significant differences centered around the recording of principal debt payments and the treatment of the disposal of fixed assets that result in reporting differences between the Handbook and GAAP. Canadian GAAP for Government Business Enterprises is now International Financial Reporting Standards, or IFRS.

Halifax Water qualifies for a deferral to become compliant with IFRS on the basis that it: A) has activities subject to

rate regulation as defined in Generally Accepted Accounting Principles, Section 1100 in Part V of the Handbook; and, B) in accordance with Accounting Guideline AcG-19, Disclosures by Entities Subject to Rate Regulation, also in Part V of the Handbook, discloses that it has accounted for a transaction or event differently than it would have in the absence of rate regulation (i.e., has recognized regulatory assets and regulatory liabilities).

Notwithstanding the temporary deferral, Halifax Water must be compliant for fiscal years beginning on or after January 1, 2014. The first fiscal year statements that will be produced in IFRS will be the 15/16 fiscal year, however the 14/15 fiscal year will have to be re-stated for comparative purposes.

It is Halifax Water’s intention to become compliant with IFRS within the prescribed period.

### Regulatory Activity

On November 24, 2014 Halifax Water submitted a two year rate application to increase rates for Water, and Wastewater

### Fire hydrant, a critical component of fire protection at the ready





effective May 1, 2015, and April 1, 2016. This was the first Rate Application reflecting consolidation of the Aerotech/Airport System; and the combined Regional Development Charge for the Urban Core and Aerotech/Airport System. Halifax Water also proposed an approach to rate smoothing and some rate design changes to enhance revenue stability which were approved by the NSUARB. Some of the changes in the rate structure include:

- Water base charges increasing 1% in 2015/16
- Wastewater base charges increasing 1% in 2016/17
- Public Fire Protection will be reduced to the Cost of Service based level by 2016/17, meaning the municipality will see the benefit of lower charges in 2015/16 and 2016/17. Public Fire Protection decreases from \$8,952,880 in 2014/15 to \$8,031,718 in 2015/16 and \$7,947,976 in 2016/17.
- Private Fire Protection charges will increase to the Cost of Service based level by 2016/17.

From a competitiveness perspective, Halifax Water's rates continue to be among the lowest in Canada.

A Settlement Agreement was reached with Intervenor during the hearing process, which Halifax Water views as a positive outcome. Some highlights from the Board findings include:

- Approval of the Settlement Agreement, including changes proposed by Halifax Water to the Cost of Service Design Manual and the Rate Design; maintain the existing wastewater base charge for 2015/16, as proposed by the Board's consultant and accepted by the Consumer Advocate; various adjustments that saw revenue requirements lowered by \$2.9 million in 2015/16 and \$4.9 million

in 2016/17; revisions to the Rules and Regulations based on recommendations from the Board's consultant; and a revised Wastewater Rebate eligibility threshold for customers who utilize more than 1,000 cubic metres of water annually.

- The Board accepted Halifax Water's capital plan, including the proposed gradualism/rate smoothing strategy for the test period.
- The Board accepted that the pension revenue requirement will be based on the cash basis for the test years and that it will be revisited in Halifax Water's next General Rate Application (GRA).
- The Board directed Halifax Water to fully explore the cost allocation to unregulated activities in the preparation of its next GRA.
- In its next GRA, the Board directed Halifax Water to provide complete details including all expenses and recoveries, allocation of operating costs to capital, and net costs allocated to revenue requirements.
- The Board accepted the water consumption levels proposed for the test years in the Application, which recognizes a 3% decline each year.
- The Board directed Halifax Water to file annual reports of its efforts to contain operating costs of the utility. This report is to be filed annually, no later than June 20th of each year. Within the Decision, it is noted that the Board appreciated receiving Halifax Water's first cost containment report, and Halifax Water's initiatives to contain its operating costs. Halifax Water filed a report with the Board in September 2014 identifying about \$2.8 million of savings in 2013/14.

## SERVICE EXCELLENCE

Halifax Water ended the year with 82,977 water customer connections, 79,466 wastewater customer connections, and 96,929 stormwater customers.

These customer numbers for water and wastewater include both the urban core, satellite and Airport/Aerotech systems. There are no stormwater customers in the Airport/Aerotech system, as the Utility does not own the infrastructure or provide stormwater service in that area.

Call volumes have increased by 15% since 2010 but have recently levelled off. Call Centre staff answered 72,601 calls in 2014/15, a decrease of 1.5% compared to 2013/14 (73,214 calls). Call volumes in 2013/14 were unusually high due to the first time implementation of separate rates for stormwater service. The average call wait time to answer was 83 seconds, short of the corporate target of 70 seconds. The average daily call volume was 294 with an abandon rate of 7%. Over the past three years a generic email for Customer Service and on-line service requests for some services has contributed to an increased workload. Administering service requests has contributed to an increased workload. Halifax Water is looking at implementing new technology and new customer service channels to improve overall service.

In 2013/14, an Advance Metering Infrastructure (AMI) Technology Assessment & Feasibility Study was completed. In 2014/15 Halifax Water completed additional work to evaluate the potential conversion to monthly or bi-monthly versus quarterly billing; and develop a plan to implement new metering technology over a three to four year period.

By its nature, AMI creates opportunities to provide a greatly enhanced level of



### Safety first on the Cow Bay Road deep storm sewer project

customer service and make fundamental changes to business processes. AMI technology opens up the possibility for two way communication with the customer. This is contrasted with Automated Meter Reading (AMR) whereby data collection devices only receive information from one way. AMR can reduce the cost of meter reading and improve its accuracy but does not fundamentally change the customer relationship. Halifax Water's current practice is to use a hybrid of AMR and traditionally walked meter routes. In future, Halifax Water will be transitioning to either full AMR, full AMI or a hybrid AMR/AMI system with walked meter routes eliminated.

During 2013/14 the Halifax Water

Board approved participation in an e-delivery project with the Property Valuation Services Corporation, the Halifax Municipality, and Cape Breton Regional Municipality. In September 2014 e-delivery of bills through Canada Post's epost system became available to Halifax Water customers. This is a service enhancement that many customers have been requesting, which will also result in financial savings for the utility associated with manually printing and mailing bills.

### Typical 5/8 inch (15 mm) residential water meter







Investing in culvert and ditch infrastructure to improve stormwater service on Pockwock Road



# Effective Asset Management

## Capital Infrastructure Program

The construction of the Lakeside Pumping Station Diversion project was completed in 2014/15. The immediate result of this project is that one third

of the flow to the Beechville/Lakeside/Timberlea wastewater treatment facility (BLT WWTF) is now redirected to the Halifax WWTF. This enables continued development within the BLT sewershed without the need for a capacity upgrade

### Kearney Lake Road connection to Pockwock watermain



### Fish Hatchery Park Pumping Station maintenance

to the BLT WWTF. In addition, the trunk gravity sewer is oversized to become a component of a future regional wastewater collection system. The total project cost was approximately \$24.2M and included two pumping stations, 3.3 km of dual 350/400 mm dia. forcemains, and 5.7 km of 900/1050 mm dia. gravity trunk sewer. The project also leaves a legacy of paved recreation trails with benches, a look off and upgraded landscaping.

The Bedford West Regional Wastewater System was another important capital project undertaken in 2014/15. This work enables development to proceed in the area of Kearney Lake to Highway 102 to Hammonds Plains Road with capacity for future growth beyond these limits. This is a Capital Cost Contribution project with the majority of the funding coming from the developers of the benefitting land. The total project cost was approximately \$24.5M and included two pumping stations, 3.6 km of dual 600 mm dia.



forcemains, 0.8 km of dual 400 mm dia. forcemains and 2 km of 375 mm dia. wastewater sewer.

In 2014 a condition assessment was undertaken of the Fish Hatchery wastewater forcemains. The Fish Hatchery Park Pumping Station provides service to all of Sackville and part of Bedford. The station was constructed in 1969 and on an average day conveys 63 million litres of wastewater to the Mill Cove Wastewater Treatment Facility (WWTF) via two forcemains. The forcemains are 450 mm and 600 mm in diameter and 1.8 km in length. They are constructed of ductile iron pipe, asbestos cement pipe and pre-stressed concrete cylinder pipe. The inspection was undertaken using free swimming tools which is a cost effective means of inspection and also enables the system to remain in operation. The assessment confirmed the forcemain system is in good structural condition.

The second phase of the Kearney Lake Transmission main project was successfully completed in 2014. The project involved the replacement of the 1200 mm diameter transmission main



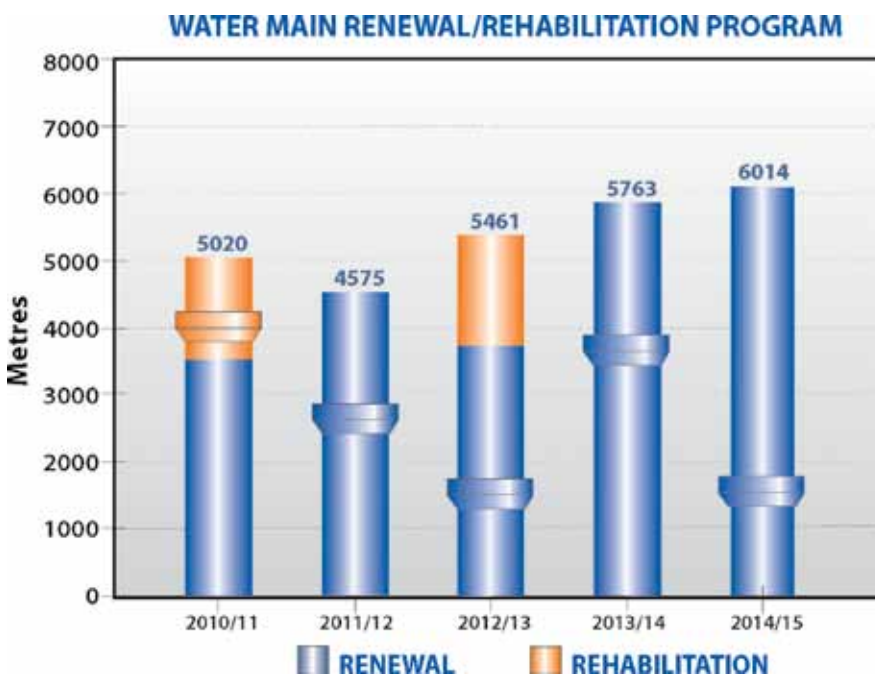
**Critical “Hot Tap” of the Pockwock watermain for service to Bedford**

along Kearney Lake Road (renamed Larry Uteck Boulevard) from Bluewater Road to the Hammonds Plains Road. Phase 2 of the project reused the temporary 750mm pipe that was used for Phase 1 in 2013. This temporary pipe has again been

retrieved and stored for reuse on future transmission main projects. One of the key components of this project in 2014 was the Larry Uteck “hot-tap”. The hot-tap involved the installation of a new large diameter connection to the Pockwock Transmission Main in order to support the ongoing growth and development in the Bedford area.

Halifax Water successfully carried out a significant volume of watermain renewal projects in conjunction with Halifax’s Street Renewal program. In the 2014/15 season, 6014 metres of water main were renewed.

Providing our customers with effective, reliable wastewater treatment requires investment in infrastructure that reflects the triple bottom line. The Aerotech Wastewater Treatment Facility (AWWTF) Expansion and Upgrade Project is an excellent example of such investment where long term thinking and a





**One of five 636 HP pumps at the Halifax Wastewater Treatment Facility**

commitment to balance financial, social and environmental concerns are integral to our service delivery.

The key drivers of the AWWTF Project are regulatory compliance and growth. At a

total project cost of \$23 million dollars, it is one of the biggest capital projects that Halifax Water is currently implementing and involves a very large, broad and diverse team in order to complete the complex and multidisciplinary work.

The Environmental Risk Assessment and Preliminary Engineering Design have been completed for the project. Currently effort is under way to complete the Detail Design Engineering by early spring of 2016. It is anticipated construction will start in late spring of 2016 and be complete a year later in the summer of 2017.

**Energy Efficiency Program**

Energy use in municipal 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. With this in mind, Halifax Water has continued its efforts to improve its energy foot print with the following key initiatives.

- The Energy Management Plan was updated to identify specific annual energy reduction targets and activities to be completed in 2014/15.
- Various equipment and infrastructure upgrades were completed in 2014/15, resulting in over 850,000 kWh (kilowatt hour equivalent) in annual energy savings. These projects include lighting upgrades in a number of Halifax Harbour Solution Project (HHSP) facilities and HVAC re-commissioning of a major wastewater pump station.
- Development of six renewable energy generation projects continued through the Community Feed In Tariff (COMFIT) program. Approvals were received from the Nova Scotia Department of Energy for all of the projects, including one wind

**Turbine in water control chamber generating electricity**







### Pockwock Windfarm project

energy development at the J.D. Kline Water supply Plant, two wind energy projects for the Lake Major watershed area, two In-Line Hydrokinetic Turbine projects to be installed within the water distribution system (one of which has been partially funded by both the Water Research Foundation and the Nova Scotia Environment, and one Biogas Combined Heat and Power (CHP) system at the Mill Cove WWTF. In terms of progress on these projects, construction of the Pockwock Wind Farm was completed in November 2014. The Orchard Control Chamber Energy Recovery System (in-line turbine) was completed in October 2014. For the period of October 2014 to March 2015, energy production was 103,825 kWh, and energy revenues were \$8,635. Annual production is expected to be 225,000 kWh with annual revenues of \$30,000. A feasibility study and preliminary design for the Mill Cove CHP system are expected to be completed by December 2015. Construction is being planned for the 2016/17 fiscal year.

- A continued focus on early stage

involvement in various infrastructure projects has also brought a focus on energy efficiency and sustainability at the design stage. Current projects include the Lakeside/Bayers Lake Pumping Station Upgrade Project, and the Aerotech WWTF Upgrade Project.

- When appropriate, Halifax Water has also taken advantage of Provincial energy efficiency rebate programs being offered by Efficiency Nova Scotia, which help to reduce capital costs and improve project payback.

Annual energy usage for Halifax Water was reduced by approximately 1.8% in 2014/15 versus 2013/14. 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.

In recognition of Halifax Water's focus on energy, Efficiency Nova Scotia awarded Halifax Water the 2014 Engagement Award.

## Asset Management Program

The Asset Management (AM) Team is responsible for four main programs: master planning, system modeling, asset management program development and support, and capital budget development.

Under master planning and system modelling, the AM Team commenced work on the West Region Wastewater Infrastructure Plan (WRWIP) continuing on from the work previously completed under the Regional Wastewater Functional Plan (RWWFP), the Integrated Resource Plan (IRP) and the Regional Development Charge (RDC) policy. The WRWIP will review background documents, confirm assumptions, legislation, constraints, update growth projections through Halifax municipality, conduct flow monitoring, update the hydraulic model, develop and evaluate a range of scenarios aimed at various levels of inflow and infiltration reduction, conduct capacity and compliance analysis, and verify the preferred servicing strategy.

Regarding the AM program development, the team has progressed the condition assessment projects for Wastewater Treatment Facilities (WWTFs), Wastewater Pumping Stations (WWPSs), and Stormwater Culverts. In addition to the data collection and assessment tasks, these projects also involve developing longer term reinvestment levels and an emphasis on the near term expenditures.

# Regulatory Compliance

## Drinking Water Quality

Halifax Water’s comprehensive water testing program ensures customers are receiving safe, reliable, high quality water. Bacteriological testing is done twice per week at 48 locations within the urban core, and weekly at each of the small water systems owned by Halifax Water. Approximately 3,600 tests for total coliform bacteria are conducted each year. Results indicate that 99.9% of samples are free of coliform bacteria.

Drinking Water Compliance Summary		
Total Coliform Sample Results		
	April 2014 to March 2015	
Systems	% Absent	# of Samples
HFX/Pockwock	100.0%	1039
HFX/Pockwock Central	100.0%	624
Lake Major	100.0%	1199
Bennery	100.0%	159
Five Islands	100.0%	103
Silver Sands	100.0%	101
Middle Musquodoboit	98.1%	106
Collins Park	100.0%	104
Miller Lake	100.0%	122
Bomont*	100.0%	26
<b>Totals</b>		3583
Absent (A)		3581
Present (P)		2
All Sites - % Absent		99.94%

\*from January 1st onwards

Additional testing of drinking water includes:

- Chlorine residual, pH, and turbidity of treated water leaving each water treatment plant, as well as at multiple locations within the plant, in order to optimize the treatment process.
- Quarterly sampling of treated water at two or three locations within the distribution system for approximately 40 chemical parameters.
- Quarterly sampling of raw lake water



Pockwock water treatment facility, filter gallery

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.
- Bi-annual testing and sampling for giardia and cryptosporidium of 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 departments to clearly delineate roles and responsibilities in the unlikely event of a disruption in water quality.

## Lake Major, water supply for Dartmouth





## Federal Wastewater System Effluent Regulations

The Canadian Council of Ministers of the Environment developed and signed the Canada-wide Strategy for the Management of Municipal Wastewater Effluent (the Strategy) in early 2009. The Strategy sets national standards for wastewater treatment, equivalent to secondary treatment. Facilities are provided timeframes in which to become compliant with this standard ranging from 10 to 30 years, depending on the degree of environmental risk posed by the effluent, and the nature of the receiving waters. The Strategy also places restrictions on overflows from both sanitary sewer and combined sewer systems (in which sanitary sewage is combined with stormwater in the same pipe). Combined sewer overflows are to be reduced and sanitary sewer overflows are to be eliminated over time. Both combined sewer overflows and sanitary sewer overflows should not increase as a result of development without having an approved management plan in place. The older parts of Halifax and Dartmouth contain combined sewer systems with combined sewer overflows, and some areas outside the downtown core have sanitary sewer overflows. With the incorporation of these requirements, Halifax Water completed the Regional Wastewater Functional Plan (RRWFP) in



**The Herring Cove Wastewater Treatment Facility**

2012 to provide a preliminary servicing overview of infrastructure needs to support growth to 2041. Management plans are to be developed and approved by local provincial jurisdictions. The federal government has developed the Wastewater System Effluent Regulations (July 2012) as a result of the Strategy, which implemented new national standards for carbonaceous biochemical oxygen demand, total suspended solids, chlorine, and ammonia (un-ionized form). All wastewater treatment facilities are required to meet the national standards within specified time frames. This will require upgrading

the Halifax and Dartmouth Harbour Solutions facilities from advanced-primary to the equivalent of secondary level treatment. The Herring Cove facility currently meets the new requirements. All treated wastewater effluent must not be acutely toxic to trout, beginning in January 2015. This sampling requirement has been added to Halifax Water's sampling program.

Halifax Water is currently putting measures in place to facilitate detection, measurement and reporting of sewer system overflows, in conformance with the new federal regulations. Combined sewer overflow reduction will be required under Management Plans to be developed with the province. Transitional Authorizations under the federal regulations will allow certain periods of time for facilities to become compliant, inclusive of combined sewer overflow reduction. Based on the level of risk as defined under the federal regulations, the Halifax and Dartmouth facilities will have 30 years (until 2041) under Transitional Authorizations issued by Environment Canada.

## Residents enjoy Dingle Beach on the Northwest Arm





### Eastern Passage WWTF overlooking the Autoport

The federal government has committed to further consultation with stakeholders on receiving water monitoring before including this in a future revision of the federal regulations.

Upgrading wastewater treatment plants and reducing overflows will require significant expenditures over time to meet the new national standards. With costs estimated at \$600 million to implement these regulations, it is hoped a funding program will be put in place by both the federal and provincial governments to help ease the financial burden to ratepayers.

### Wastewater Treatment Facility (WWTF) Compliance

Wastewater treatment facilities in Nova Scotia are regulated by Nova Scotia Environment (NSE). NSE sets effluent discharge limits for all wastewater facilities. The limits define maximum concentrations of parameters such as carbonaceous biochemical oxygen demand (a measure of the amount of material in water which will consume oxygen as it decomposes), total suspended solids (a measure of the amount of particulate matter in the

water), and fecal coliform (bacteria associated with wastewater). For some facilities, nutrient removal (nitrogen and phosphorus which cause excess growth of algae and plants) and pH (a measure of acidity) are also regulated.

Some older wastewater facilities – 12 in total – were in need of upgrading and/or were over-stressed by the volume of wastewater, and were therefore often non-compliant with Nova Scotia Environment effluent limits. In an effort to address these issues, Halifax Water has completely reconstructed the Wellington Wastewater Treatment Facility, and has completed a \$61 million expansion

and upgrade to the Eastern Passage Facility. The wastewater collection systems for two treatment facilities – Wellington and Frame – were both completely replaced, resulting in major improvements to the performance of both treatment facilities. The treatment processes at several other facilities have been significantly improved through optimization efforts by Halifax Water staff. Also, a substantial diversion of sewage from the Beechville-Lakeside-Timberlea sewershed to the Halifax sewershed is now underway. This will reduce the loading on the existing Lakeside-Timberlea treatment facility and improve its performance and compliance status.

Nova Scotia Environment is in the process of changing compliance measurement standards from the former system, under which 80% of samples collected must meet the effluent limits, to conform to the newer federal system, under which average values must meet the effluent limits for each facility. Under these criteria and as demonstrated by the following tables, ten of fifteen facilities were fully compliant for 2014/15.

Capital and operational improvements undertaken by Halifax Water have resulted in performance improvements for several of our wastewater treatment facilities, which are reflected in the 2014-15 results and will continue in the

### Upgraded Process Control area at the Wellington WWTF





Systems under old NSE Approvals during FY 2014-15, assessed using the 80% test:

## Wastewater Treatment Facility Compliance Summary

Cumulative Performance - April 2014 to March 2015

Wastewater Treatment Facility	% of Samples Compliant with Nova Scotia Environment Discharge Requirements									NSE Discharge Limits Achieved
	CBOD5	TSS	Fecal Coliform	Phosphorus	O-Phosphate	Ammonia	pH	Dissolved Oxygen	Aluminum	
AeroTech	99	54	97	100	N/A	72	100	N/A	N/A	No
Belmont	80	65	70	N/A	N/A	N/A	N/A	N/A	N/A	No
Frame	95	35	95	N/A	N/A	N/A	N/A	N/A	N/A	No
Lakeside-Timberlea	88	20	92	N/A	100	24	N/A	97	N/A	No
Lockview-MacPherson	54	36	80	N/A	100	N/A	N/A	N/A	N/A	No
Middle Musquodoboit	100	83	96	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Mill Cove	99	95	91	N/A	N/A	N/A	N/A	N/A	N/A	Yes
North Preston	91	81	95	N/A	98	86	95	N/A	N/A	Yes
Springfield	92	82	95	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Steeves (Wellington)	100	100	98	N/A	100	86	100	N/A	100	Yes
Uplands Park	80	85	80	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Weighted Average	90	67	92	100	100	59	99	97	100	

**LEGEND:**

	NSE Achieved (>= 80%)
	NSE not Achieved (<80%)

N/A – Not Applicable

**Definitions:**

- CBOD5 – Carbonaceous Biochemical Oxygen Demand – a measure of the amount of organic material
- Total Suspended Solids – a measure of the amount of particles in the wastewater
- Fecal Coliform – bacteria which are present in the treated sewage
- Phosphorus – 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

Systems under new NSE Approvals during FY 2014-15, assessed using average values:

## Wastewater Treatment Facility Compliance Summary

Cumulative Performance - April 2014 to March 2015

	CBOD5	TSS	Fecal Coliform	Phosphorus	O-Phosphate	Ammonia	pH	Dissolved Oxygen	Aluminum	NSE Discharge Limits Achieved
Halifax	34	21	2641	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Herring Cove	14	11	117	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Dartmouth	23	24	2771	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Eastern Passage	9	11	280	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Weighted Average	20	17	1452	N/A	N/A	N/A	N/A	N/A	N/A	

**LEGEND:**

	Specific parameter limit achieved
	Specific parameter limit not achieved

N/A – Not Applicable

future. However, as the compliance results demonstrate, some treatment facilities still require capital and operational improvements. Halifax Water has developed Compliance Plans to upgrade and/or expand these facilities to improve their performance and become fully compliant. A major upgrade to the Aerotech wastewater treatment facility is in the design stages. The Belmont WWTF is scheduled to be decommissioned with work getting underway in 2015/16. Wastewater will be transferred to the recently expanded and upgraded Eastern Passage facility.

### Regulatory Enforcement

Halifax Water regulates discharges into its wastewater and stormwater systems to ensure compliance with Halifax Water's Regulations as approved by the Nova Scotia Utility and Review Board. Materials such as hazardous chemicals, solvents, fuels, heavy metals and eroded soil, if discharged into our systems, may disrupt wastewater treatment processes; cause damage to the collection system or treatment facilities; create hazardous conditions for both the public and staff; and result in pollution of our rivers, lakes and the harbour.

Some discharges are immediate in nature such as an accident, failure of a fuel storage tank, or an illegal dump of a noxious substance into a storm or wastewater system. Others are more prolonged in nature such as an ongoing non-compliant discharge from an industrial or institutional facility, or a cross connection of a wastewater lateral into a storm sewer (which then discharges into a fresh water or marine water body), or the discharge of stormwater into the wastewater system, which causes operational and compliance problems within the wastewater system and can lead to flooding.

Halifax Water uses a variety of tools to address issues of non-compliant discharge, including education, system monitoring, investigations, system improvements and the development of improved construction practices.

Enforcement and other regulatory responses are also provided for in our regulations.

Halifax Water continues to find cross connections in which wastewater laterals from homes and other buildings are incorrectly connected to the stormwater system. In 2014/15, five new cross connections were identified. Three of these were corrected in 2014/15 along with two cross connections from previous years. The discharge of wastewater into a stormwater system poses a direct risk to public health and the environment, and is therefore addressed on a priority basis.

The Inflow and Infiltration (I & I) Reduction Program is intended to address the most serious operational issue facing Halifax Water's wastewater system – the increase in wastewater flow during wet weather. This increase in flow can cause overflows into the environment and can disrupt treatment processes, thereby posing a risk to public health and potentially putting Halifax Water out of compliance with federal and provincial regulations. The I & I Program focuses primarily on customer connections that allow stormwater to enter the wastewater system. In 2014/15 the I & I Program investigated over 40 commercial sites, 18 streets or neighbourhoods and over 130 residential



**Pollution Prevention staff sample an urban watercourse for a possible cross-connection.**

properties searching for sources of stormwater entering the wastewater system or in support of the Wet Weather Flow Management Program.



**Environmental Engineering staff install a flow meter to monitor stormwater discharge to the wastewater system.**

### Private Outfall Elimination

The Private Outfall Elimination Program began in parallel with the Halifax Harbour Solutions Project in 2004. The objective of this program is to identify and eliminate privately owned wastewater pipes that are discharging directly into Halifax Harbour. The owner of each such pipe was required to construct a proper connection to the wastewater system to direct flows to one of Halifax Water's wastewater treatment facilities. In 2014/15 no outfalls were repaired and two (known) private outfalls were

remaining to be repaired, with tenders approved to undertake the work. Since the Private Outfall Elimination Program began, an estimated 64 outfall pipes discharging approximately 3000 cubic metres of wastewater per day have been eliminated, which is equivalent to the volume of wastewater from about 9000 people.

### **Stormwater Billing**

Effective July 1, 2013, Halifax Water began billing all properties that receive stormwater service. Previously only customers receiving wastewater service (piped connection) paid a stormwater charge based on water consumption. The fees collected were used to maintain stormwater systems across the entire stormwater service area. This situation resulted in some customers receiving stormwater service without paying for it. This is contrary to the Public Utilities Act which mandates that charges be based on cost causation (user pay) principles and customers receive fair and equitable treatment.

Halifax Water has 97,849 customers receiving water, wastewater and stormwater service, or a combination of the three services. A number of customers requested an exemption from paying the stormwater charge, as per approved regulations. During 2014/15 over 2200 requests for exemption were received, approximately 1900 requests were responded to and 260 requests submitted for a second review. Approximately 740 properties were found to be exempt from paying the stormwater charge. Halifax Water continues to respond to Stormwater Billing Exemption requests and will be submitting an Application to the NSUARB in 2015/16 to consider changes to the stormwater cost of service methodology.

## **Environmental Management Systems**

The International Standards Organization (ISO) sets standards for a variety of different processes and products. One of these is the ISO 14001 Standard, which sets the basic requirements for Environmental Management Systems. Under this standard, an organization or facility must define environmental goals, identify environmental impacts from its operations, document processes and procedures to reduce or control these impacts, and put in place procedures to audit performance. Audits are conducted by certified external auditors. There must also be a process to ensure continuous improvement, based on the findings of each audit.

Halifax Water currently has three facilities registered under ISO 14001 for drinking water supply and treatment – Pockwock, Lake Major and Bennery Lake. In 2013/14, Halifax Water began expansion of the ISO 14001 program to include wastewater treatment facilities. The Herring Cove Wastewater Treatment Facility was selected as the initial wastewater facility for ISO 14001 registration. During 2014/15, an analysis was done of the environmental impacts of this facility's operations, standard operating procedures were documented to reduce or prevent these impacts, and staff training was provided on Environmental Management Systems and incident response.

In 2015/16, Halifax Water intends to conduct an audit of the Herring Cove Wastewater Treatment Facility in order to have it registered under ISO 14001. The ISO program will then be extended to additional wastewater treatment facilities. The benefit of ISO registration is that it ensures good environmental stewardship and facility management for the public, regulatory agencies, and Halifax Water.

# Stewardship of the Environment

## Wet Weather Management Program

Halifax Water’s Wet Weather Management Program (WWMP) continues to refine the approach to managing the flows placed on Halifax Water sewer systems due to inflow and infiltration (I/I). The WWMP made a number of advancements through the fiscal year.

In order to prioritize individual sanitary systems within the service boundary, flow monitoring data is essential. Since the required historical flow monitoring data is not available, Halifax Water adopted a unique approach to compare the relative magnitude of wet weather impacts within the service boundary.

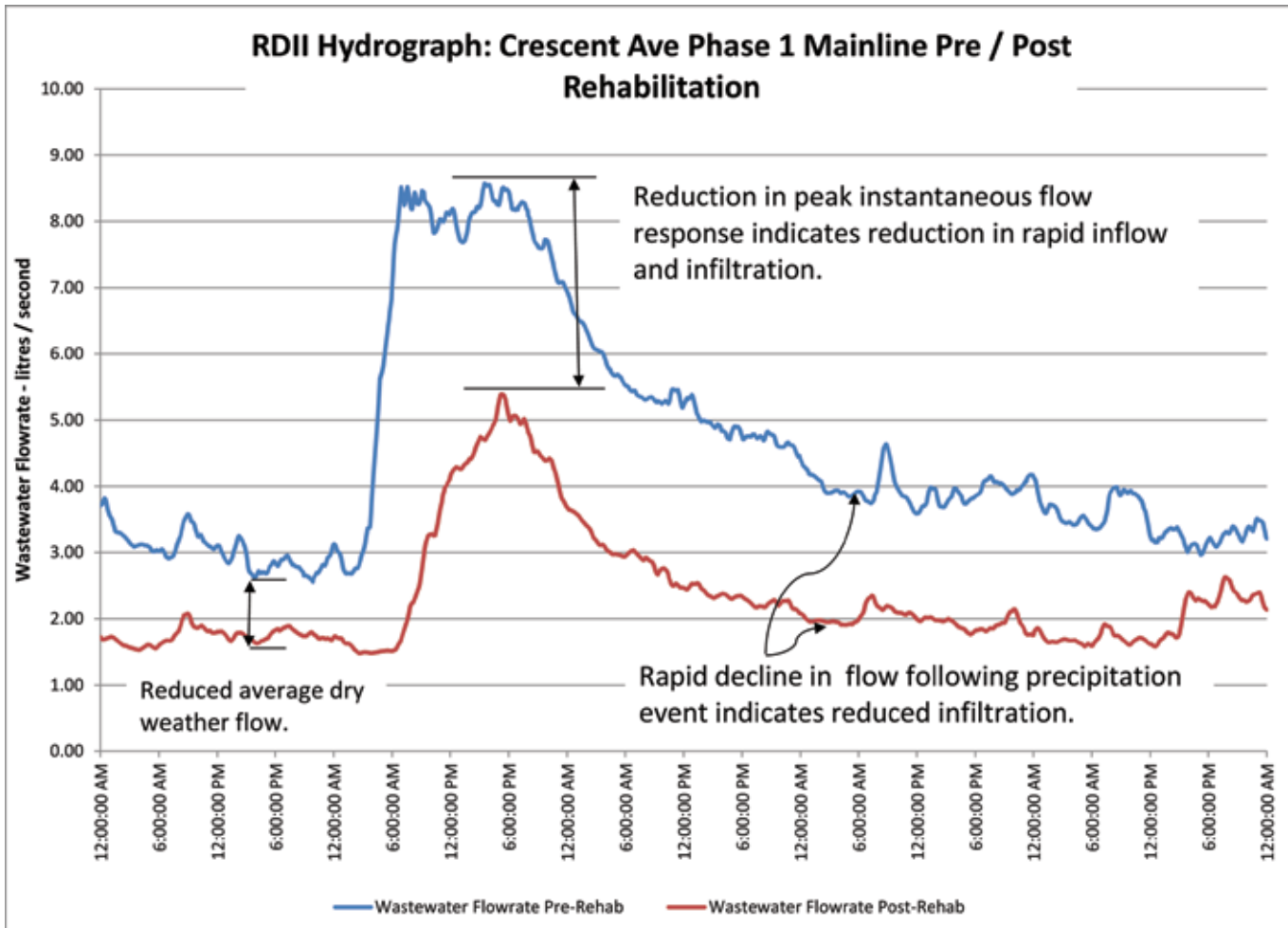
Sanitary sewer pumping stations are programmed to operate automatically. The operating times of the pumps are recorded at a central location. These operating times were used as a substitute for flow measurement to compare the peak flows of the entire service boundary and provide the WWMP with a prioritized list of sewersheds that have significant I/I impacts. This information is being used to make decisions on where to prioritize efforts to manage the wet weather flows within Halifax Water’s wastewater system.

The WWMP advanced three pilot projects this year. Notably the Crescent Avenue sewer mains were rehabilitated utilizing trenchless technology. Trenchless



**Rehabilitating the Crescent Avenue sewer using innovative trenchless technology**

technology eliminates the need to dig up streets and is significantly quicker and cheaper than traditional excavation construction methods. The method employed at Crescent Avenue was Cured In Place Pipe (CIPP). In phase I (2014) mainlines were successfully relined with limited disturbance to the residents.





Phase II (2015) will see lateral relining/rehabilitation take place, with phase III (manhole rehabilitation) planned for 2016. Preliminary results indicate a dramatic reduction in I/I following the phase I mainlining.

Installation of a deep storm sewer in the Cow Bay Road area of Eastern Passage got underway in summer 2014. This major project, which was funded 2/3 by Halifax municipality and 1/3 by Halifax Water, is one that many area residents have been looking forward to. The new storm sewer will reduce current I/I into the sanitary sewer, and provide a receiving pipe for discharges from private residents. In advance of the Cow Bay Road project, baseline flow data was captured so post-project results can be compared to pre-project flows. This will allow Halifax Water staff to measure project benefits through the reduction/elimination of flows in area sewer systems during rain events. This project also provides the opportunity to quantify the volume of flow that can be removed from the sanitary sewer system through the installation of a new deep storm sewer.

### Pipe installation at Cow Bay using traditional open trench technique



The Stuart Harris Sanitary Sewershed Evaluation Study (SSES) has been completed and many sources of private and public I/I were identified. Sanitary sewer mainline rehabilitation is scheduled for fall 2015. Baseline flow data was compiled during 2014/15 so that I/I removal rates can be determined post rehabilitation.

Building on the success of the preliminary results attained at Crescent Ave., three additional sewersheds will be added to the comprehensive rehabilitation program for calendar 2015. It is critical to evaluate the value of rehabilitating sanitary sewers. A comprehensive cost/benefit analysis is required to determine the success of this approach. There is limited research available to quantify the cost of flow reduction. Halifax Water intends to run this analysis as results become available in each of the pilot areas.

There are two main technical activities that are critical to the Wet Weather Management Program (WWMP); CCTV pipe inspections and Sanitary Sewer Flow Monitoring.

These services provide the SSES team with two crucial pieces of information; the condition of the sewer pipe and how much flow is generated during precipitation events and during periods of dry weather. This information is then analyzed to identify the extent of the problem and what can be done to manage the wet weather flows. Using a prioritization matrix as a guiding document, Halifax Water will utilize the valuable information gained to support the data needs of the WWMP and Asset Management programs.



### CCTV camera ready to inspect sewer main

## Membrane Technology for Treatment of Secondary Effluent a Great Success

Municipalities and industries that discharge treated wastewater to the environment are facing more stringent restrictions related to effluent discharge requirements. To align with our corporate mission statement, "to provide world class services for our customers and our environment", Halifax Water initiated a pilot project to investigate the use of membrane technology to provide enhanced effluent treatment at select wastewater treatment facilities (WWTFs). The membrane pilot project began with the purchase and installation of a flat sheet low pressure membrane filtration module at the Aerotech WWTF.

With help from Halifax Water staff at the AeroTech WWTF, Technical Services and Central Region Collection System Operators, the system was installed and commissioned in the summer of 2014. The pilot was operated and evaluated for several months producing superior effluent quality with non-detectable total suspended solids and zero fecal coliform/100 mL counts in the treated effluent.

With the success of the Aerotech WWTF installation, staff looked for other viable applications of this technology. The Frame WWTF in Waverley was constructed in the late 60's and has



**Frame WWTF producing high quality effluent**

continuously struggled to meet effluent permit requirements throughout the years. With the AeroTech WWTF pilot a proven success, and the Frame WWTF facing short term facility upgrade costs (\$0.5 million dollars and potential replacement costs exceeding \$1.5 million), an internal value engineering exercise was conducted. The analysis determined that by implementing membrane technology, the Frame WWTF could meet current effluent guidelines at a fraction of the capital costs of the original preliminary design estimates.

With support from Halifax Water Central/ East Region Collection System Operators, Technical Services and local contractors, the membrane tertiary filtration process equipment was successfully installed and commissioned in August 2015.

The Frame WWTF is now producing effluent that exceeds the effluent permit requirements. The system is being evaluated and studied further with support from Dalhousie University.

## **Stormwater Infrastructure Maintenance and Upgrades**

A well maintained wastewater and stormwater system is essential to ensure environmental protection, regulatory compliance, and protect private and public property. Halifax Water's operations staff conduct routine inspections, repair, and cleaning of stormwater infrastructure. The stormwater infrastructure maintenance included inspection and cleaning of approximately 1,600 catchbasins; cleaning of over 20 kilometers of storm pipe; repairing 122 stormwater manholes and over 200 catch basins; performing maintenance on 26 km of ditches; and replacing 181 culverts. This work is in addition to other capital work undertaken on the stormwater system.

Wastewater collection system maintenance includes the operation and maintenance of Halifax Water's 170 pumping stations. These stations are visited at least once a week and

proactively maintained to keep them in good working condition. Other components of wastewater infrastructure maintenance include 90 kms of mainline sewer cleaning; inspection of 500 manholes; 280 lateral replacements; and repairs to 300 manholes. Where possible, Halifax Water also employs trenchless pipe rehabilitation technology to restore deteriorated pipe. Twenty five pipeline repairs and 15 sewer lateral renewals were performed using this innovative approach.

## **Halifax Water uses GPS to Streamline Sludge Disposal for Septic Contractors.**

Halifax Water has leveraged its fleet Global Positioning System (GPS) technology to make improvements to its sludge receiving and treatment processes. After completing a successful trial project, Halifax Water equipped 13 trucks from 10 private Septic Contractors with GPS devices to improve its septage receiving and treatment processes.

## **Ongoing investments in stormwater infrastructure**







### **Crew works to optimize wastewater flows at the Balmoral pumping station**

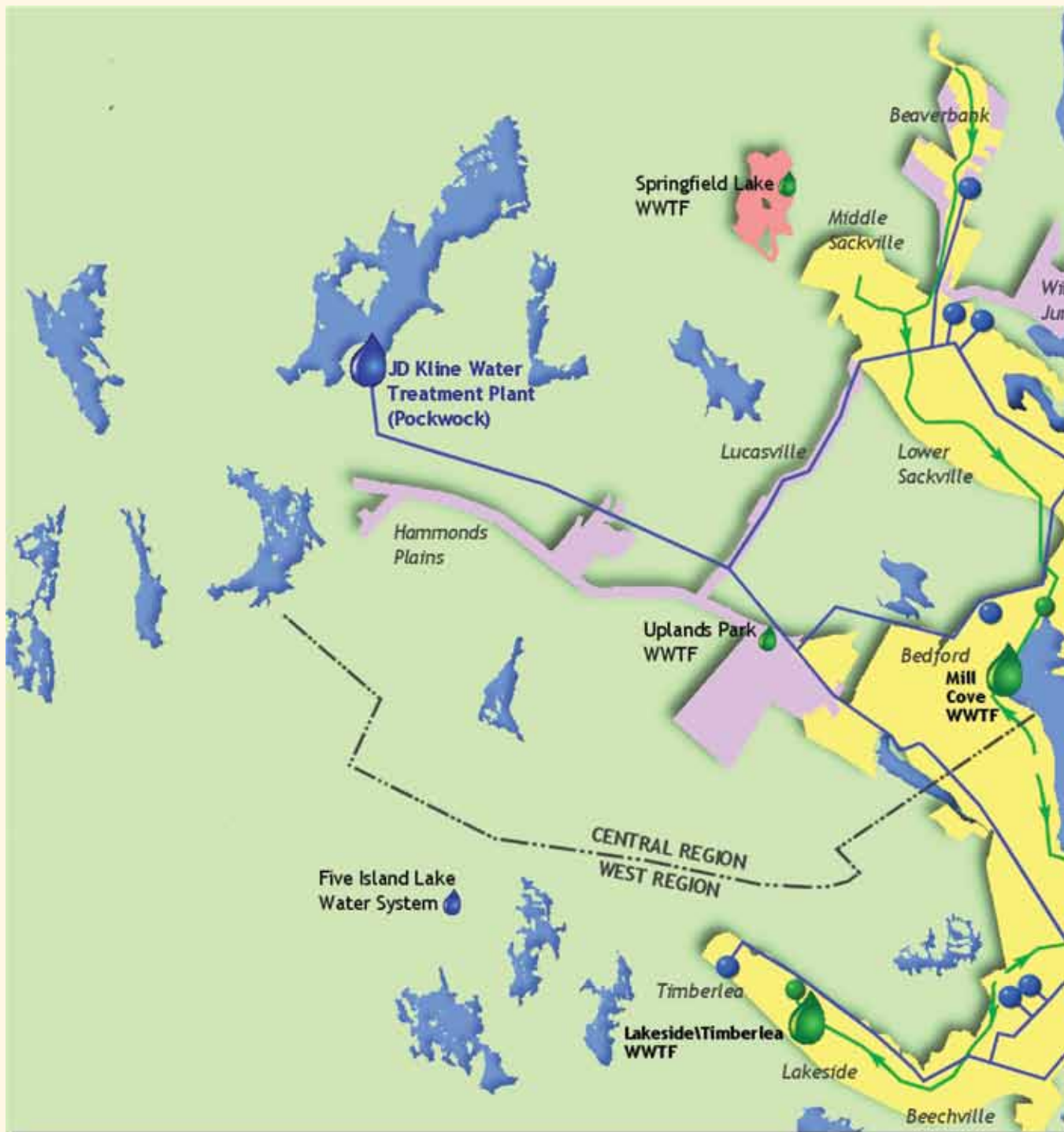
The GPS devices track the contractor's truck position and automatically reports each contractor's sludge disposal at a designated offloading location.

This technology based solution is a win/win for both Halifax Water and its participating septage contractors. Contractors now have more disposal sites available to them for longer business hours which offer them greater flexibility. The contractors can also utilize the GPS data to improve their own equipment management and route planning.

In addition to automating a previously manual information collection and

tracking process, the technology allows Halifax Water to receive contractor septage at optimum locations within its wastewater collection system which improves overall treatment efficiencies.

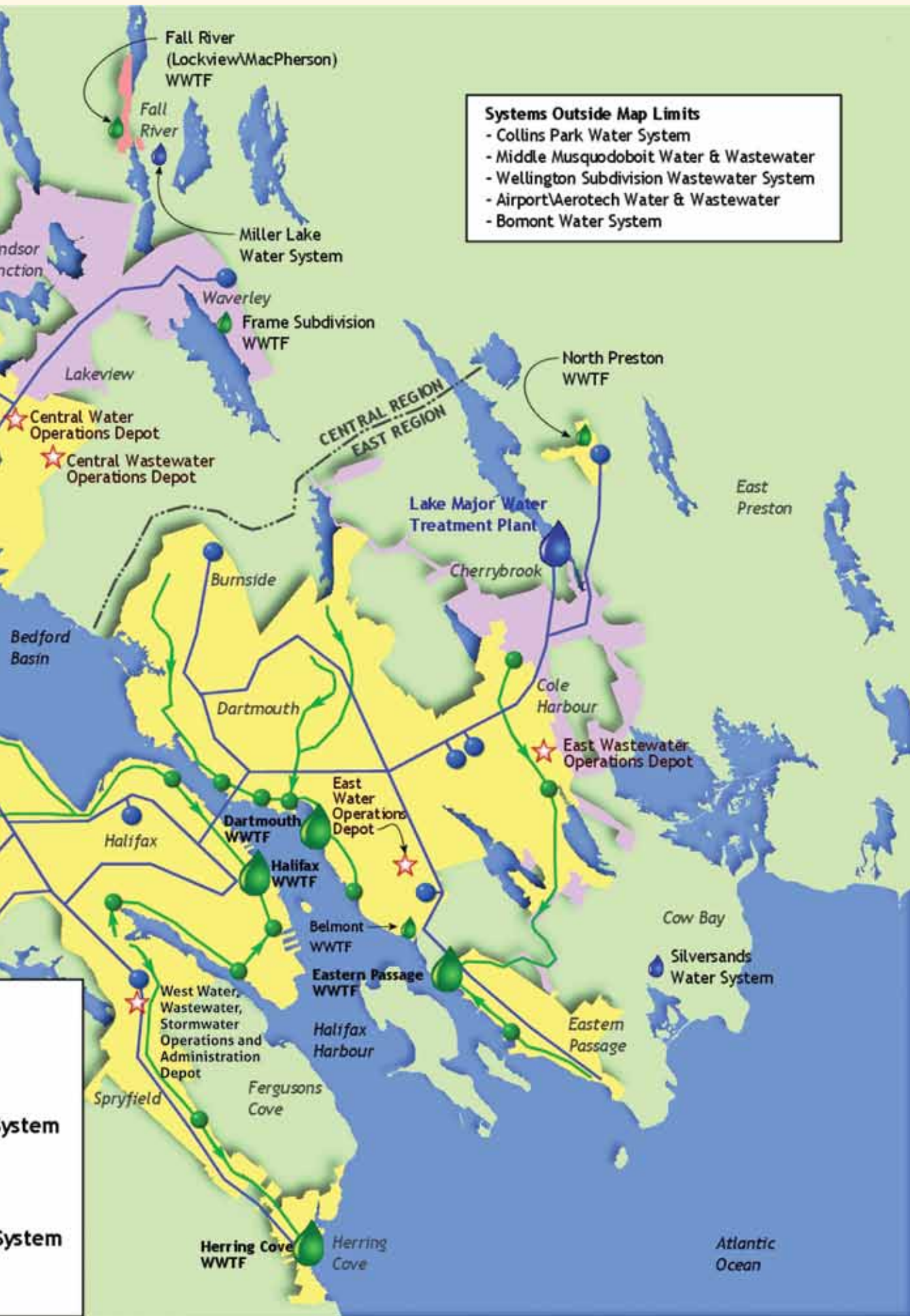




## Water & Wastewater Service Districts and Supporting Infrastructure



- |                                    |   |   |                      |
|------------------------------------|---|---|----------------------|
| Water Service District             |  |  | Wastewater Trunk S   |
| Wastewater Service District        |  |  | Water Treatment      |
| Common District                    |  |  | Water Reservoir      |
| Wastewater Treatment               |  |  | Water Distribution S |
| Primary Wastewater Pumping Station |  |  | Operations Depot     |





# Safety and Security

Halifax Water and its employees are committed to providing a healthy and safe work environment to prevent occupational illness and injury. Health and safety is a core business function and treated as a priority in daily work. Halifax Water's seven Joint Occupational Health and Safety Committees continue to provide an effective forum where employees and management representatives meet every month to address health and safety issues that arise in the workplace. These committees actively facilitate inspections, review monthly safety statistics, conduct workplace accident investigations and review safe work practices and procedures to ensure the safety of all employees at Halifax Water.

This year Halifax Water actively increased safety awareness for contractors working on behalf of Halifax Water. Contractors working at our facilities completed

daily orientation sessions. Contractors working on large capital projects undertook Contractor Pre-construction Safety Reviews prior to startup of the project. Our inspectors are also closely monitoring these projects and reporting and correcting all incidents of non-compliance in regards to safety.

Halifax Water is responsible to provide vehicles that are suitable for the tasks being undertaken. This includes appropriate licensing, inspection, maintenance and equipment for managers, supervisors and employees when conducting work on behalf of Halifax Water. This year renewed efforts were made to ensure our fleet met the Commercial Vehicle Safety and Compliance rules and regulation. All employees have received updated training on the Commercial Vehicle Trip Inspection and Records Regulation and the Commercial Vehicle Driver's Hours



**Using a trench box to ensure safe working conditions**

of Service Regulation. Hands-on load securing training was also provided as part of this initiative.

Recognizing that water, wastewater and stormwater services are vital to the sustainability of communities in Halifax municipality, Halifax Water maintains an active Emergency Response Program and

## Halifax Water crew safely repairs a watermain on Green Acres Road





a corporate Security Program. Employees continue to utilize the Incident Command System (ICS) when responding to such incidents as watermain breaks, wastewater releases, and environmental emergencies. The ICS is also used for planned work and was utilized for the shutdown on the Kearney Lake Road transmission main in the summer.

Halifax Water participates on a regular basis in multi-agency exercises with Halifax Fire, Halifax Police, Halifax Transportation and Public Works, Metro Transit, Emergency Health Services, and the RCMP. These exercises enable us to be prepared when responding to water, wastewater and stormwater incidents. It also allows employees to develop working relationships with other participating agencies, which is critical to success in multi-agency responses to emergencies. These relationships proved themselves as Halifax Water made repairs to the Lake Major Dam on January 17, 2015 with active support from Halifax Municipality, RCMP and Halifax Regional Ground Search and Rescue.

#### **Crew works to repair the fish ladder at the Lake Major dam**



#### **Ensuring the fleet is well maintained to respond to a variety of situations**

The federal government recognizes water as one of the ten critical infrastructure sectors that are essential to the health, safety, security and economic well-being of Canadians. Public Safety Canada works with critical infrastructure partners to manage risks, reduce vulnerabilities and strengthen the resilience of critical infrastructure. This year Public Safety

Canada completed four assessments at our wastewater and water treatment facilities as part of their Regional Resilience Assessment Program.

In 2015/16, Halifax Water will be working with Workers Compensation Board (WCB) to assist in enhancing the safety culture and program within our organization.

As well the utility will be rolling out a new excavation training program with improvements based on feedback from employees.

# Motivated And Satisfied Employees

## Strategic Workforce Planning

Halifax Water is committed to offering a challenging and rewarding career to all employees while providing world class services to our customers and our environment.

Over the last two years, Halifax Water has been working to develop its future leaders and recruiting for new talent as part of its Strategic Workforce Plan. Succession planning is well underway for key roles and positions requiring a unique or competitive skillset. A large component of developing future internal leaders is completed through Halifax Water's customized supervisory competency training program "Performance Matters". To date, 37 employees have successfully completed the customized training program and a new class of 17 employees is underway.

Halifax Water strives to recruit the

right candidate that is both a fit for the position and the organization. Multiple strategic recruitment and assessment tools have been incorporated into the recruitment plan to assist in attracting and retaining the right candidates for Halifax Water.

In addition to a collegial work environment that promotes a work-life balance, Halifax Water offers its employees a challenging and rewarding career with a competitive compensation and benefits package, opportunities for professional development, and incentive programs. All members of the Halifax Water team contribute to the success of the utility while delivering water, wastewater and stormwater services in an integrated, cost effective and environmentally sound manner with a commitment to long term sustainability.

## 2014 Service Awards

At the Service Awards banquet in 2014 awards were presented to the following staff:

### 35 Year Awards

Finance & Customer Service

Cheryl Little

Wastewater/Stormwater Services

Anthony Makin

### 30 Year Awards

Wastewater/Stormwater Services

William MacDonald

Water Services

Timothy Stanislav

### 25 Year Awards

Wastewater/Stormwater Services

Randy Shrum

William Sanderson

Leon Oulton

Gerald Patterson

Andrew Smith

Water Services

Raymond Young

William Robar

Terrance Nelson

Anthony Tooke

Alan Ossinger

Marty Dykeman

### 20 Year Awards

Engineering & Information Services

Jamie Hannam

Wastewater/Stormwater Services

James Mason

Water Services

John Gaudet

Kevin Kelloway

### 10 year Awards

Finance & Customer Service

Jody Charron

Ann Marie Grace

Amanda Seguin

## Recruiting the best and brightest at a Halifax Job Fair







### The Halifax Water team . . . in their element

Cheryl MacEachern  
 Environmental Services  
 Kimberley Fawcett  
 Michelle MacDonald  
 Wastewater/Stormwater Services  
 Belinda Dickson  
 Richard Lowe  
 Water Services  
 Trish Simms  
 William Stevens  
 Darcy Josey  
 Kenneth Eisnor

### Halifax Water Supporting Your Community

Halifax Water continues with fundraising initiatives to support Community groups like the United Way. For the 2014 Campaign Halifax Water staff raised a total of \$5,418.25 for the United Way Halifax campaign.

Halifax Water Staff raised \$2,056.00 for the H2O (Help to Others), Water Assistance Program to help those in-need with their water bills. This is on top of the \$18,927 Halifax Water provided in financial assistance through unregulated revenue.

Staff donated a total of \$8014.00 to the

AWWA "Water for People" program. This program sponsors water supply projects in Third World Countries.

The Christmas Families Fundraising initiative purchased gifts for 39 children as part of Carolyn's Angel Tree Program, provided funds to Hope Cottage and Feed Nova Scotia, and bought towels and face cloths for Bryony House.

Halifax Water staff also donated their time, energy and resources to the 2014 Bluenose Marathon. This year Halifax Water staff volunteered at one of the busiest water stations on the marathon course

and raised funds in support of Special Olympics Nova Scotia.

The Halifax Water Rush team raised funds and took part in the Manulife Dragon Boat Festival.

Every year Halifax Water supports community events through the provision of water stations. These water stations showed up at over thirty community events ranging from the Bluenose Marathon, to the Multicultural Festival and annual Halifax Harbour Swim. These water stations are more in demand at community events every year.

### Water station at a community event on the Halifax waterfront





## TYPICAL ANALYSIS OF POCKWOCK/LAKE MAJOR WATER 2014 - 2015

(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	Objective Concentration
Alkalinity (as CaCO <sub>3</sub> )	<1.0	22.5	<1.0	18.5	-	-
Aluminum	0.120	0.131	0.195	0.030	-	*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	0.97	3.9	0.88	9.9	-	-
Chloride	7.1	8.8	6.4	8.3	-	≤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)	16.0	<3.0	38.1	3.0	-	≤15.0
Conductivity (µmho/cm)	34.0	87.0	33.0	110.0	-	-
Copper (Total)	0.014	<0.004	0.113	<0.003	-	≤1.0
Fluoride	<0.10	0.72	<0.10	0.60	1.5	0.7
Hardness (as CaCO <sub>3</sub> )	4.0	11.2	3.7	26.0	-	-
Hardness (as CaCO <sub>3</sub> ) (Grains)	0.28	0.78	0.27	1.83	-	-
HAA5 (avg.)	-	0.051	-	0.055	0.080	-
Iron (Total)	0.060	<0.050	0.100	<0.050	-	<0.3
Langelier Index @ 4°C	-4.6	-2.2	-5.4	-2.1	-	-
Langelier Index @ 20°C	-4.2	-2.0	-4.4	-1.9	-	-
Lead (Total) (µg/l)	0.60	<0.50	<0.50	<0.50	10.0	-
Magnesium	0.41	0.42	0.36	0.43	-	-
Manganese (Total)	0.034	0.008	0.054	0.007	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate and Nitrite (as N)	0.057	0.054	0.054	0.065	10.0	-
pH (pH Units)	5.8	7.3	5.5	7.2	-	6.5 - 8.5
Potassium	0.31	.35	0.31	0.32	-	-
Sodium	4.4	16.0	3.9	10.8	-	≤200
Solids (Total Dissolved)	19.5	50.5	29.0	73.0	-	≤500
Sulfate	3.0	7.7	2.4	24.0	--	≤500
Turbidity (NTU)	0.30	<0.09	0.32	<0.04	**0.2 / 1.0	≤5
Total Organic Carbon (TOC)	2.6	1.5	4.4	1.5	-	-
THM's (avg.)	-	0.058	-	0.064	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	0.007	0.074	0.007	0.096	-	≤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% of the time, as required by Provincial Permit.

## TYPICAL ANALYSIS - SMALL SYSTEMS 2014 - 2015

(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	Objective Concentration
Alkalinity (as CaCO <sub>3</sub> )	<5.2	33.5	31.0	34.0	-	-
Aluminum	0.120	0.015	0.007	0.006	-	0.2
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	<0.001	<0.001	0.004	0.0054	0.010	-
Calcium	2.25	22.0	8.9	8.5	-	-
Chloride	6.1	9.2	4.3	5.2	-	≤250
Chlorate	<0.1	0.5	<0.1	<0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	31.3	<3.0	<5.0	<3.0	-	≤15.0
Conductivity (µmho/cm)	33.0	140.0	73.0	81.0	-	-
Copper (Total)	0.385	0.043	<0.003	0.015	-	≤1.0
Fluoride	<0.10	<0.10	0.41	0.40	1.5	-
Hardness (as CaCO <sub>3</sub> )	7.7	58.0	26.0	26.0	-	-
Hardness (as CaCO <sub>3</sub> ) (Grains)	0.55	4.1	1.8	1.8	-	-
HAA5 (avg.)	-	0.048	-	<0.005	0.080	-
Iron (Total)	0.490	<0.050	<0.050	<0.050	-	≤0.3
Langelier Index @ 4°C	-2.7	-1.6	-2.2	-1.5	-	-
Langelier Index @ 20°C	-2.3	-1.5	-1.9	-1.3	-	-
Lead (Total) (µg/l)	0.70	<0.50	<0.50	<0.50	10.0	-
Magnesium	0.47	0.57	1.0	1.0	-	-
Manganese (Total)	0.290	0.29	<0.002	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate and Nitrite (as N)	<0.06	<0.06	0.055	<0.050	10.0	-
pH (pH Units)	6.39	7.4	7.2	7.6	-	6.5 - 8.5
Potassium	0.23	0.25	0.46	0.46	-	-
Sodium	3.5	14.3	5.5	6.7	-	≤200
Solids (Total Dissolved)	18.0	92.0	57.0	62.0	-	≤500
Sulfate	2.9	28.2	2.5	2.6	-	≤500
Turbidity (NTU)	1.36	<0.04	<0.10	<0.12	*0.2 / 1.0 **1.0	≤5
Total Organic Carbon (TOC)	4.0	2.9	<0.50	<0.50	-	-
THM's (avg.)	-	0.065	-	<0.001	0.100	-
Uranium (µg/l)	<0.10	<0.10	10.0	10.0	20.0	-
Zinc (Total)	0.011	0.085	<0.005	<0.006	-	≤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	0.31 / 0.23	0.31 / 0.16	0.5 / 1.0	-
Lead-210 (Bq/L)	-	-	-	<0.1	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 2014 - 2015

(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	Raw Water	Treated Water	Maximum Acceptable Concentration	Objective Concentration
Alkalinity (as CaCO <sub>3</sub> )	55.0	78.0	10.0	5.2	-	-
Aluminum	0.006	0.006	0.060	0.007	-	0.2
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	<0.001	<0.001	0.003	<0.001	0.010	-
Calcium	18.0	3.1	6.1	0.22	-	-
Chloride	11.5	6.9	38.0	7.5	-	≤250
Chlorate	<0.1	0.1	<0.1	0.2	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	<5.0	<5.0	19.0	<5.0	-	≤15.0
Conductivity (µmho/cm)	170.0	150.0	150.0	22.0	-	-
Copper (Total)	0.006	0.007	<0.002	0.002	-	≤1.0
Fluoride	<0.10	<0.10	<0.10	<0.10	1.5	-
Hardness (as CaCO <sub>3</sub> )	73.0	12.0	19.0	<1.0	-	-
Hardness (as CaCO <sub>3</sub> ) (Grains)	5.1	0.8	1.3	0.1	-	-
HAA5 (avg.)	-	<0.005	-	<0.008	0.080	-
Iron (Total)	<0.050	<0.050	0.150	<0.050	-	≤0.3
Langelier Index @ 4°C	-1.8	-2.1	-2.9	-5.1	-	-
Langelier Index @ 20°C	-1.6	-1.8	-2.6	-4.9	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	10.0	-
Magnesium	6.7	0.95	0.85	<0.10	-	-
Manganese (Total)	<0.002	<0.002	0.119	<0.002	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate and Nitrite (as N)	0.80	0.58	0.12	0.053	10.0	-
pH (pH Units)	6.6	7.2	7.0	6.6	-	6.5 - 8.5
Potassium	0.84	0.46	0.88	0.11	-	-
Sodium	5.9	32.7	21.5	5.4	-	≤200
Solids (Total Dissolved)	107.5	70.0	98.0	16.5	-	≤500
Sulfate	30.0	<2.0	7.1	<2.0	-	≤500
Turbidity (NTU)	<0.13	<0.03	1.94	<0.03	*0.1 / 0.3	≤5
Total Organic Carbon (TOC)	0.52	<0.50	3.2	<0.50	-	-
THM's (avg.)	-	<0.001	<1.0	<0.004	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	0.017	0.150	0.005	0.097	-	≤5.0
PCB (µg/l)	<0.05	<0.05	<0.05	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.010/<0.10	<0.010/<0.10	<0.010/<0.10	<0.010/<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 2014 - 2015

(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	Objective Concentration
Alkalinity (as CaCO <sub>3</sub> )	76.0	73.0	-	2.0	-	-
Aluminum	0.007	0.006	-	0.080	-	0.2
Ammonia (N)	0.052	<0.050	-	<0.050	-	-
Arsenic	<0.002	<0.001	-	<0.001	0.010	-
Calcium	38.0	38.0	-	7.8	-	-
Chloride	65.5	65.5	-	9.2	-	≤250
Chlorate	<0.1	0.3	-	<0.1	1.0	-
Chlorite	<0.1	<0.1	-	<0.1	1.0	-
Colour (True Colour Units)	<5.3	<5.0	-	<5.0	-	≤15.0
Conductivity (µmho/cm)	390.0	380.0	-	110.0	-	-
Copper (Total)	<0.002	<0.002	-	<0.002	-	≤1.0
Fluoride	0.19	0.22	-	0.71	1.5	-
Hardness (as CaCO <sub>3</sub> )	120.0	120.0	-	21.0	-	-
Hardness (as CaCO <sub>3</sub> ) (Grains)	8.5	8.5	-	1.5	-	-
HAA5 (avg.)	-	<0.006	-	0.063	0.080	-
Iron (Total)	0.678	<0.050	-	<0.050	-	≤0.3
Langelier Index @ 4°C	-0.43	-0.72	-	-2.05	-	-
Langelier Index @ 20°C	-0.18	-0.47	-	-1.80	-	-
Lead (Total) (µg/l)	<0.50	<0.50	-	<0.50	10.0	-
Magnesium	5.0	5.1	-	0.42	-	-
Manganese (Total)	0.770	0.012	-	0.004	-	≤0.05
Mercury (µg/l)	<0.013	<0.013	-	<0.013	1.0	-
Nitrate and Nitrite (as N)	<0.050	<0.050	-	<0.50	10.0	-
pH (pH Units)	7.6	7.5	-	7.4	-	6.5 - 8.5
Potassium	0.86	0.93	-	0.34	-	-
Sodium	25.0	26.0	-	13.5	-	≤200
Solids (Total Dissolved)	215.0	200.0	-	75.0	-	≤500
Sulfate	22.0	21.0	-	8.0	-	≤500
Turbidity (NTU)	5.7	<0.20	-	<0.19	**1.0 ***0.2 / 1.0	≤5
Total Organic Carbon (TOC)	<0.50	<0.50	-	1.6	-	-
THM's (avg.)	-	<0.004	-	0.074	0.100	-
Uranium (µg/l)	<0.10	<0.10	-	<0.10	20.0	-
Zinc (Total)	<0.005	0.023	-	0.069	-	≤5.0
PCB (µg/l)	<0.05	<0.05	-	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	0.19/0.13	<0.10/<0.10	-	<0.10/<0.10	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. \*\*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 <0.1 NTU 100% of the time, as required by Provincial Permit.

## TYPICAL ANALYSIS - SMALL SYSTEMS 2014 - 2015

(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	Objective Concentration
Alkalinity (as CaCO <sub>3</sub> )	13.5	27.0			-	-
Aluminum	0.535	0.060			-	0.2
Ammonia (N)	0.10	0.13			-	-
Arsenic	0.008	<0.001			0.010	-
Calcium	9.2	7.4			-	-
Chloride	20.0	31.9			-	≤250
Chlorate	<0.1	0.3			1.0	-
Chlorite	<0.1	<0.11			1.0	-
Colour (True Colour Units)	36.0	<5.0			-	≤15.0
Conductivity (µmho/cm)	122.5	109.5			-	-
Copper (Total)	<0.003	0.008			-	≤1.0
Fluoride	<0.10	<0.09			1.5	-
Hardness (as CaCO <sub>3</sub> )	27.0	21.0			-	-
Hardness (as CaCO <sub>3</sub> ) (Grains)	1.92	1.5			-	-
HAA5 (avg.)	-	0.040			0.080	-
Iron (Total)	0.535	<0.050			-	≤0.3
Langelier Index @ 4°C	-2.50	-2.23			-	-
Langelier Index @ 20°C	-2.27	-1.50			-	-
Lead (Total) (µg/l)	<0.72	<0.50			10.0	-
Magnesium	1.09	0.58			-	-
Manganese (Total)	0.041	0.006			-	≤0.05
Mercury (µg/l)	<0.013	<0.013			1.0	-
Nitrate and Nitrite (as N)	0.17	0.060			10.0	-
pH (pH Units)	7.0	7.1			-	6.5 - 8.5
Potassium	1.1	0.54			-	-
Sodium	12.0	16.3			-	≤200
Solids (Total Dissolved)	70.0	82.0			-	≤500
Sulfate	15.5	<4.7			-	≤500
Turbidity (NTU)	6.6	<0.11			*1.0/0.3	≤5
Total Organic Carbon (TOC)	4.95	1.15			-	-
THM's (avg.)	-	0.050			0.100	-
Uranium (µg/l)	<0.10	<0.10			20.0	-
Zinc (Total)	<0.005	0.028			-	≤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 <1.0 NTU 99% of the time and <0.3 NTU 100% of the time, as required by Provincial Permit.

# Financial Statements

(NSUARB Accounting and Reporting Handbook)

Halifax Regional Water Commission

March 31, 2015



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## Independent auditor's report

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

We have audited the accompanying financial statements of Halifax Regional Water Commission, which comprise the balance sheet as at March 31, 2015, and the statements of operations, contributed capital surplus, operating surplus, operating surplus used to fund capital and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information. The financial statements have been prepared by management based on the financial reporting provisions of the Accounting and Reporting Handbook for Water Utilities ("the Water Utility Handbook") issued by the Nova Scotia Utility and Review Board.

### Management's responsibility for the financial statements

Management is responsible for the preparation of these financial statements in accordance with the financial reporting provisions of the Water Utility Handbook, 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 audit. We conducted our audit 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 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 is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements of Halifax Regional Water Commission for the year ended March 31, 2015 are prepared, in all material respects, in accordance with the financial reporting provisions of the Water Utility Handbook.

### Basis of Accounting

Without modifying our opinion, we draw attention to note 2(a) to the financial statements, which describes the basis of accounting. The financial statements are prepared to assist the Halifax Regional Water Commission to comply with the financial reporting provisions of the Water Utility Handbook referred to above. As a result, the financial statements may not be suitable for another purpose.

### Other matters

Our audit was conducted for the purpose of forming an opinion on the financial statements taken as a whole. The supplementary information included on pages 56 to 62 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such supplementary information has been subjected to the auditing procedures, only to the extent necessary to express an opinion, on the financial statements taken as a whole.

Halifax, Canada  
June 18, 2015

*Grant Thornton LLP*  
Chartered Accountants

# Halifax Regional Water Commission

## Statement of operations

Year ended March 31, 2015

(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
Operating revenues			
Water service	\$ 39,434	\$ 38,727	\$ 34,341
Wastewater service	66,654	67,131	54,698
Stormwater service	9,647	10,951	8,446
Fire protection	8,953	8,953	9,575
Private fire protection services	562	558	429
Airport Aerotech system	1,724	1,775	1,717
Other operating revenue	2,878	2,225	2,295
	129,852	130,320	111,501
Operating expenditures			
Water supply and treatment	7,535	7,531	7,284
Water transmission and distribution	9,313	9,026	8,495
Wastewater collection	10,482	11,175	10,671
Stormwater collection	5,316	3,992	4,055
Wastewater treatment	20,405	19,540	18,079
Engineering and information services	7,333	6,766	6,774
Environmental services	2,602	2,654	2,559
Customer service	4,089	4,117	3,930
Administration and pension	12,070	10,062	10,388
Airport Aerotech system	1,725	1,570	1,702
Depreciation	18,581	17,954	15,798
	99,451	94,387	89,735
Operating profit	30,401	35,933	21,766
Financial and other revenues			
Interest	660	836	689
Other	2,419	2,225	2,318
	3,079	3,061	3,007
Financial and other expenditures			
Interest on long term debt	9,188	8,957	8,161
Repayment of long term debt	18,888	18,638	17,256
Amortization of debt discount	144	163	132
Grant in lieu of taxes	4,340	4,340	4,187
	32,560	32,098	29,736
Excess of revenues over expenditures (expenditures over revenues)	\$ 920	\$ 6,896	\$ (4,963)

See accompanying notes to the financial statements.



# Halifax Regional Water Commission

## Balance sheet

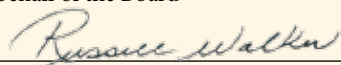
March 31, 2015  
(in thousands)

	2015	2014
<b>Assets</b>		
Current		
Cash and cash equivalents	\$ 39,271	\$ 38,290
Receivables		
Customer charges and contractual	29,660	23,437
Halifax Regional Municipality	3,743	818
Materials and supplies	1,528	1,445
Prepays	915	694
	75,117	64,684
Regulatory asset (note 5)	3,772	3,964
Capital work in progress	41,423	10,676
Utility plant in service (schedule A)	1,013,765	1,005,207
	\$ 1,134,077	\$ 1,084,531
<b>Liabilities</b>		
Current		
Payables and accruals		
Trade	\$ 14,645	\$ 20,202
Interest on long term debt	2,137	2,026
Halifax Regional Municipality	6,973	3,796
Contractor and customer deposits	198	190
Current portion of long term debt (schedule B)	22,374	28,139
Unearned revenue	511	118
	46,838	54,471
Long term debt (schedule B)	208,231	186,964
Accrued pension liability (note 4)	10,796	10,234
Accrued post-retirement benefits (note 4)	604	617
Accrued pre-retirement benefit (note 4)	3,425	3,159
	269,894	255,445
<b>Equity</b>		
Special purpose reserves (note 7)	24,875	18,030
Contributed capital surplus (page 49)	823,992	802,636
Operating surplus (deficit) (page 49)	2,936	(3,960)
Operating surplus used to fund capital (page 49)	12,380	12,380
	864,183	829,086
	\$ 1,134,077	\$ 1,084,531

Contingent liabilities (note 3)

Commitments (note 8)

On behalf of the Board



Commissioner

Commissioner

See accompanying notes to the financial statements.

# Halifax Regional Water Commission

## Statement of cash flows

Year ended March 31, 2015

(in thousands)

	2015	2014
Increase (decrease) in cash and cash equivalents		
<b>Operating</b>		
Excess of revenues over expenditures (expenditures over revenues)	\$ 6,896	\$ (4,963)
Depreciation and amortization	19,124	17,090
Accrued pension liability	562	3,127
Decrease in accrued post-retirement benefits	(13)	(60)
Repayment of long term debt	18,638	17,256
Increase in accrued pre-retirement benefit	266	230
	45,473	32,680
Change in non-cash operating working capital items (note 9)	(11,320)	6,508
	34,153	39,188
<b>Financing</b>		
Proceeds from issuance of long term debt	43,730	48,457
Contributions to reserves	7,095	2,283
Debt issue costs	(89)	(231)
Principal repayment on Harbour Solutions long term debt	(16,500)	(6,500)
Principal repayments of long term debt	(11,639)	(9,053)
	22,597	34,956
<b>Investing</b>		
Capital cost contributions	3,187	324
Proceeds from sale of plant in service	482	278
Purchase of capital work in progress	(33,331)	(6,089)
Purchase of utility plant in service	(26,107)	(52,720)
	(55,769)	(58,207)
Increase in cash and cash equivalents	981	15,937
Cash and cash equivalents, beginning of year	38,290	22,353
Cash and cash equivalents, end of year	\$ 39,271	\$ 38,290

See accompanying notes to the financial statements.

## Halifax Regional Water Commission Statement of contributed capital surplus

Year ended March 31, 2015  
(in thousands)

	2015	2014
Contributed capital surplus, beginning of year	\$ 802,636	\$ 786,170
Contributions to plant in service	14,628	4,259
Transfer from special purpose reserve (note 7)	250	6,923
Debt repayment	18,638	17,256
Loss on disposal of assets	(445)	(2,252)
Gain on sale of land	-	152
Capital surplus transferred with HHSP (note 3)	(327)	-
	<b>835,380</b>	<b>812,508</b>
Less: amortization (note 2(b))	11,388	9,872
Contributed capital surplus, end of year	\$ 823,992	\$ 802,636

## Halifax Regional Water Commission Statement of operating deficit

Year ended March 31, 2015  
(in thousands)

	2015	2014
Operating (deficit) surplus, beginning of year	\$ (3,960)	\$ 1,003
Operating surplus used to fund capital	-	-
Excess of revenues over expenditures (expenditures over revenues)	6,896	(4,963)
Stewardship contributions charged to current surplus	-	-
Operating surplus (deficit), end of year	\$ 2,936	\$ (3,960)

## Halifax Regional Water Commission Statement of operating surplus used to fund capital

Year ended March 31, 2015  
(in thousands)

	2015	2014
Operating surplus used to fund capital, beginning of year	\$ 12,380	\$ 12,380
Additions to utility plant in service funded by operating surplus	-	-
Operating surplus used to fund capital, end of year	\$ 12,380	\$ 12,380

See accompanying notes to the financial statements.



# Halifax Regional Water Commission

## Notes to the financial statements

March 31, 2015

(in thousands)

### 1. Nature of operations

The Commission is a public utility owned 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.

### 2. Summary of significant accounting policies

#### (a) Regulation

In matters of administrative policy relating to 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. These statements have been prepared in accordance with the Accounting and Reporting Handbook for Water Utilities (Handbook) issued by the NSUARB. There are differences in the accounting treatment of certain transactions from Canadian generally accepted accounting principles including the accounting of principal debt payments and gains and losses on the disposal of fixed assets.

Regulatory assets represent costs incurred that have been deferred as approved by the NSUARB and will be recovered through future rates collected from customers.

#### (b) Utility plant

Utility plant in service (Schedule A) is recorded at cost, including interest capitalized on the financing of projects during construction. Contributions for capital expenditures are credited to contributed capital surplus. 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 contributed capital surplus for the period.

The Handbook permits the recording of contributed assets. The estimated value of contributed assets is credited to contributed capital surplus. Commencing in fiscal 2005, contributed assets are depreciated over their estimated remaining useful lives. The related contributed capital surplus is being amortized on the same basis as the contributed assets to which it relates.

The Commission has implemented a policy to account for infrastructure extensions into its water, wastewater and stormwater service districts, which for the most part will be recovered by capital contributions from developers in current and future periods. The objective is for these extensions to be cost neutral to the Commission with regard to current customers, unless there is a benefit to them. The related infrastructure extensions may include costs incurred by the Commission to provide additional capacity, not required at the present time, but undertaken to allow for future expansion. The estimated portion of these costs that do not benefit existing customers are recorded as contributed assets. The capital cost contribution is credited to contributed capital surplus when receivable and estimates adjusted, if required, when the development into the service area is complete. The capital cost contributions are subject to approval by the NSUARB. Growth related costs associated with regional water and wastewater infrastructure are also funded through a regional development charge (RDC) approved by the NSUARB.

#### (c) Cash and cash equivalents

Cash and cash equivalents consist of cash on hand and balances with banks, net of bank indebtedness.

#### (d) 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:

Structures and improvements	50 to 100 years
Pumping equipment	5 to 30 years

Purification and treatment equipment	20 to 50 years
SCADA equipment	5 to 25 years
Water, wastewater and stormwater mains	60 to 100 years
Services and laterals	50 to 60 years
Meters	20 to 25 years
Hydrants	50 to 80 years
Tools and work equipment	5 to 30 years
Office equipment and furniture and transportation equipment	3 to 10 years

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.

#### (e) Depreciation fund

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.

#### (f) Materials and supplies

Materials and supplies inventories are carried at the lower of cost and net realizable value with cost being determined on a moving average basis.

#### (g) Revenues and expenditures

All revenues and expenditures are recorded on an accrual basis. Receivables include outstanding revenue billed by the Commission and estimated revenue not yet billed.

#### (h) Long term debt

Repayment of long term debt is recorded on an accrual basis as an expense on the statement of operations. Interest on long term debt is recorded on an accrual basis. Debt issue costs are deferred and amortized over the term of the debt to which it relates.

#### (i) Reserves

Certain funds within the reserves can be used for capital expenditures only with the approval of the NSUARB. All reserve withdrawals in excess of \$250 require approval from the NSUARB. System connection charges approved by the NSUARB are added to these reserves as collected. The reserves are to be used for capital expenditures on the water, wastewater and stormwater systems (note 7).

#### (j) Measurement uncertainty

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 are not limited to but include the following:

- At year end, revenue from water 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.
- Allowance for doubtful accounts includes a provision for successful stormwater exemption appeals.
- Management assumptions are used in the actuarial determination of the accrued pension liability, accrued post-retirement benefits, and accrued pre-retirement benefit. These assumptions are outlined in note 4. Actual results could differ from these estimates.

#### (k) Financial instruments

The Commission initially recognizes and measures its financial assets and liabilities at fair value. Loans and receivables, held to maturity financial assets and other financial liabilities are subsequently measured at cost or amortized cost.

# Halifax Regional Water Commission

## Notes to the financial statements

March 31, 2015  
(in thousands)

The Commission classifies financial assets and liabilities according to their characteristics and management's choices and intentions related thereto for the purposes of ongoing measurements. Classification choices for financial assets include: a) held for trading - measured at fair value with changes in fair value recorded in net earnings; b) held to maturity - recorded at amortized cost with gains and losses recognized in net earnings in the period that the asset is derecognized or impaired; and c) loans and receivables - recorded at amortized cost with gains and losses recognized in net earnings in the period that the asset is no longer recognized or impaired.

Classification choices for financial liabilities include: a) held for trading - measured at fair value with changes in fair value recorded in net earnings and b) other - measured at amortized cost with gains and losses recognized in net earnings in the period that the liability is no longer recognized. Any financial asset or liability can be classified as held for trading as long as its fair value is reliably determinable.

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

Asset/Liability	Classification	Measurement
Cash	Held for trading	Fair value
Cash equivalents	Held for trading	Fair value
Receivables	Loans and receivables	Amortized cost
Receivable from HRM	Loans and receivables	Amortized cost
Payables and accruals	Other liabilities	Amortized cost
Long term debt	Other liabilities	Amortized cost
Deposits	Other liabilities	Amortized cost

Unless otherwise noted, it is management's opinion that the Commission is not exposed to significant interest, currency or credit risks arising from financial instruments. The fair value of the Commission's financial instruments approximates their carrying values.

### 3. Contingent liabilities

As a condition of the sale of a property in prior year, 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 \$2,000 - \$2,500.

The Commission has certain outstanding grievances for alleged violations of the collective agreements with its unions. The financial risk of these grievances is not considered material.

The Canada Revenue Agency (CRA) has proposed an adjustment to the goods and services tax/harmonized sales tax (GST/HST) return for the month of April 2011 in the amount of \$680. The Commission has accrued a liability of \$327 and reduced the capital surplus transferred with the HHSP. The remaining balance of the proposed adjustment is being contested.

### 4. Pension plan, post-retirement benefits and pre-retirement benefit

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 the year, the Commission funded \$692 (2014 - \$643) in contributions to the plan.

For all other employees, the Commission maintains a defined benefit pension plan and offers post-retirement health and insurance benefits to all of its employees. The pension plan provides pensions based upon length of service and best five years' earnings. This defined benefit pension plan is funded by employer and employee contributions, each contributing 12.95% effective January 1, 2014 (previously 10.47%) of regular employee earnings. The Commission follows the recommendations of Section 3461 "Employee Future Benefits" of the CICA Handbook, Part V (Pre-changeover accounting standards).

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 months' 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, 2015, is as follows:

	2015	2014	2015	2014	2015	2014
	Pension	Pension	Retirement	Post-	Retirement	Pre-
	Plan	Plan	Benefits	Post-	Retirement	Retirement
				Retirement	Benefit	Benefit
<b>Accrued benefit obligation</b>						
Balance, beginning of year	\$ 125,427	\$ 112,291	\$ 868	\$ 736	\$ 3,174	\$ 3,005
Current service cost	7,181	6,823	-	-	253	253
Interest cost	5,721	4,905	30	23	146	131
Actuarial loss (gain)	22,712	4,687	(374)	192	14	(60)
Benefit payments	(3,774)	(3,300)	(66)	(83)	(133)	(155)
Transfers in	29	21	-	-	-	-
Balance, end of year	157,296	125,427	458	868	3,454	3,174
<b>Fair value of plan assets</b>						
Balance, beginning of year	77,478	67,189	-	-	-	-
Actual return on plan assets	9,364	7,758	-	-	-	-
Transfers in	29	21	-	-	-	-
Benefit payments	(3,774)	(3,300)	(66)	(83)	(133)	(155)
Contributions: Employee	2,864	2,112	-	-	-	-
Employer	6,330	3,698	66	83	133	155
Balance, end of year	92,291	77,478	-	-	-	-
Plan deficit	65,005	47,949	458	868	3,454	3,174
Unamortized transitional asset	393	590	-	-	-	-
Unamortized experience (loss) gain	(54,157)	(37,763)	146	(251)	(29)	(15)
Unamortized plan amendments	(445)	(542)	-	-	-	-
Accrued benefit liability	\$ 10,796	\$ 10,234	\$ 604	\$ 617	\$ 3,425	\$ 3,159
Accrued benefit liability, beginning of year	\$ 10,234	\$ 7,107	\$ 617	\$ 677	\$ 3,159	\$ 2,929
Expense	6,892	6,825	53	23	399	385
Employer contributions	(6,330)	(3,698)	(66)	(83)	(133)	(155)
Accrued benefit liability recognized	\$ 10,796	\$ 10,234	\$ 604	\$ 617	\$ 3,425	\$ 3,159

# Halifax Regional Water Commission

## Notes to the financial statements

March 31, 2015  
(in thousands)

Administration and pension expense includes pension expense of \$6,892 (2014 - \$6,825). This amount includes the amortization of experience gains and losses and plan improvements. Amortization is calculated on a straight-line basis over the estimated average remaining service life of the employee group, currently estimated at 19 years.

Included in receivables is \$250 related to the 2014 retroactive pension contributions funded by the employer on behalf of the employees. The contribution rate changed from 10.47% to 12.95% effective January 1, 2014, but was implemented July 1, 2014 in the payroll system. The employee portion of retroactive pension contributions was funded by a reallocation of the employee pre-retirement benefit based on an agreement with the various employee groups. The employee receivable becomes payable at retirement, termination or death, at which time it will be offset by reducing the pre-retirement benefit payment. If an employee has less than 10 years of continuous service, the amount will be deducted from the employee's final pay. Employees are assessed a taxable benefit for T4 purposes, based on the CRA deemed interest rate applied to the outstanding loan.

The following assumptions have been used in the actuarial extrapolations of the accrued benefit liability at March 31, 2015:

	2015	2014	2015	2014	2015	2014
	Pension Plan	Pension Plan	Post-Retirement Benefit	Post-Retirement Benefits	Pre-Retirement Benefit	Pre-Retirement Benefit
Discount rate	3.70%	4.50%	2.60%	3.70%	3.70%	4.50%
Expected return on plan assets	5.50%	5.50%	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%	10%	N/A	N/A
Health benefit inflation per year	N/A	N/A	4.50-7.70%	4.50-7.97%	N/A	N/A
Dental benefit inflation per year	N/A	N/A	4.50%	4.50%	N/A	N/A

Funding for the pension plan is based on regular actuarial reviews. The last valuation was completed January 1, 2014, and the next review is scheduled for January 1, 2017.

### 5. Regulatory asset

In June 2011, the NSUARB granted the Commission approval to defer depreciation charges on certain assets transferred in 2010 from HRM relating to the HHSP. Depreciation of \$2,078 was deferred in each of fiscal 2010/11 and 2011/12. As a result, the Commission recognized a \$4,156 regulatory asset. In absence of rate regulation, this regulatory asset would have been expensed as depreciation in fiscal 2010/11 and 2011/12. In May 2012, the NSUARB granted approval of the amortization of this asset over the remaining useful lives of the underlying assets, beginning in 2013/14. The expense recognized in 2014/15 is \$192 (2014 - \$192).

### 6. Return on rate base

	2015	2014
Rate of return on rate base for water service	3.17%	2.32%
Rate of return on rate base for wastewater service	11.29%	5.47%
Rate of return on rate base for stormwater service	21.26%	10.02%
Rate of return on rate base for Airport Aerotech water service	19.35%	(2.41)%
Rate of return on rate base for Airport Aerotech wastewater service	32.93%	10.76%

### 7. Special purpose reserves

	Wastewater & Stormwater Reserves	RDC Water Reserve	RDC Wastewater Reserve	Other Capital Reserves	2015 Total	2014 Total
Reserve, beginning of year	\$ 17,818	\$ -	\$ -	\$ 212	\$ 18,030	\$ 22,670
Contributions and interest	1,643	136	5,316	-	7,095	2,283
Expenditures	(250)	-	-	-	(250)	(6,923)
Reserve, end of year	\$ 19,211	\$ 136	\$ 5,316	\$ 212	\$ 24,875	\$ 18,030

### 8. Commitments

An agreement with HRM for renewal of the dividend/grant in lieu of taxes for fiscal years 2011 to 2015 for water services was approved by the NSUARB as part of the January 1, 2011 rate decision. There was no dividend/grant in lieu of taxes approved for wastewater/stormwater. The Commission is committed to a payment of \$4,528 for the 2016 fiscal year.

At March 31, 2015, the Commission had \$47,617 in expenditures from current and past approved capital budgets not yet expended.

### 9. Supplemental cash flow information

	2015	2014
Changes in non-cash operating working capital items		
Receivables, customer charges and contractual	\$ (6,223)	\$ 424
Payable to/receivable from HRM, net	252	2,812
Materials and supplies	(83)	(151)
Prepays	(221)	54
Payables and accruals, trade	(5,557)	2,999
Accrued interest on long term debt	111	373
Contractor and consumer deposits	8	(4)
Unearned revenue	393	1
	\$ (11,320)	\$ 6,508

Interest paid during the year was \$8,957 (2014 - \$8,161).

### 10. 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:

	2015	2014
Long term debt (current portion)	\$ 22,374	\$ 28,139
Long term debt	208,231	186,964
Funded debt	230,605	215,103
Equity	864,183	829,086
Capital under management	\$ 1,094,788	\$ 1,044,189

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.



# Halifax Regional Water Commission

## Notes to the financial statements

March 31, 2015  
(in thousands)

### 11. Financial risk management

#### *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 customer charges and contractual accounts receivable. However, the Commission's customers are numerous and diverse, which reduces the concentration of credit risk. The Commission considers the credit quality of its accounts receivables that are neither past due nor impaired to be collectible.

#### *Interest risk*

Interest risk arises from the possibility that change in interest rate 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. The Commission, therefore, considers its exposure to interest rate fluctuations to be minimal.

#### *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.

### 12. Related party transactions

Transactions with HRM are recorded at carrying value in accordance with Section 3840 "Related Party Transactions" of the CICA Handbook, Part V (Pre-changeover accounting standards).

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.

During the year, 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 \$4,726 (2014 - \$3,304).
- The Commission recorded fire protection revenue from HRM of \$9,146 (2014 - \$9,758).
- The Commission paid a grant in lieu of tax of \$4,340 (2014 - \$4,187).
- The HRM refinanced \$10,000 in Harbour Solutions project debt through the Municipal Finance Corporation that was formerly with the Federation of Canadian Municipalities.
- HRM approved a blanket guarantee of Commission debt subject to the Commission maintaining a debt service ratio of less than 35%.

### 13. Consolidation of Airport Aerotech system

On October 31, 2014, the Nova Scotia Utility and Review Board approved consolidation of the Airport Aerotech system into the urban core rate structure, effective April 1, 2015. Consolidation will result in a reduction in rates for customers in the Airport Aerotech system to align with the same rate structure applicable to customers in the urban core.

### 14. Comparative figures

Certain of the comparative figures for 2014 have been reclassified to conform with the financial statement presentation adopted for 2015.

# Halifax Regional Water Commission

## Schedule of utility plant in service

## Schedule A

Year ended March 31, 2015

(in thousands)

			2015	2014
	Cost	Accumulated Depreciation	Net Book Value	Net Book Value
<b>Water</b>				
Intangible plant	\$ 1,662	\$ 576	\$ 1,086	\$ 1,243
Land and land rights	15,731	-	15,731	15,875
Structures and improvements	86,197	24,291	61,906	60,188
Pumping equipment	9,711	6,528	3,183	4,134
Purification equipment	22,347	13,604	8,743	7,913
SCADA equipment	4,623	3,431	1,192	812
Transmission and distribution mains	333,592	71,852	261,740	249,654
Services	33,001	5,243	27,758	27,133
Meters	14,322	5,220	9,102	10,270
Hydrants	18,300	3,317	14,983	14,776
Tools and work equipment	2,685	2,501	184	771
Transportation equipment	5,001	4,140	861	1,544
Office equipment and furniture	10,868	8,479	2,389	2,875
Small systems	8,363	1,638	6,725	6,958
Airport Aerotech system	1,036	290	746	590
	567,439	151,110	416,329	404,736
<b>Wastewater</b>				
Intangible plant	5,968	2,715	3,253	3,903
Land and land rights	9,585	-	9,585	9,585
Structures and improvements	166,242	42,633	123,609	126,427
Pumping equipment	10,299	5,527	4,772	2,989
Treatment equipment	159,122	31,373	127,749	138,382
SCADA equipment	7,337	507	6,830	6,677
Collection system	250,067	49,840	200,227	200,030
Laterals	13,669	851	12,818	10,438
Tools and work equipment	926	769	157	242
Transportation equipment	5,327	3,476	1,851	1,676
Office equipment and furniture	3,146	1,458	1,688	1,855
Small systems	8,567	1,575	6,992	6,890
Airport Aerotech system	3,229	664	2,565	2,691
	643,484	141,388	502,096	511,785
<b>Stormwater</b>				
Structures and improvements	9,534	1,053	8,481	8,248
Collection system	104,566	21,271	83,295	77,350
Laterals	2,562	151	2,411	2,166
Tools and work equipment	32	12	20	28
Transportation equipment	424	81	343	172
Office equipment and furniture	947	157	790	722
	118,065	22,725	95,340	88,686
<b>Total</b>	<b>\$ 1,328,988</b>	<b>\$ 315,223</b>	<b>\$ 1,013,765</b>	<b>\$ 1,005,207</b>

During the year, \$373 of interest was capitalized to Utility Plant in Service (2014 - \$1,023).

# Schedule B

# Halifax Regional Water Commission Schedule of long term debt

Year ended March 31, 2015

(in thousands)

	Interest rate	Final Maturity	Balance Remaining	
			2015	2014
<b>Payable to Municipal Finance Corporation</b>				
Water				
Debenture 23 A 1	4.250% to 6.125%	2018	\$ 900	\$ 1,000
Debenture 25 A 1	2.970% to 4.560%	2015	2,750	3,000
Debenture 96 A 1	5.500% to 8.000%	2016	160	240
Debenture 26 A 1	4.350% to 4.880%	2016	2,400	2,600
Debenture 27 A 1	4.650% to 5.010%	2017	3,175	4,139
Debenture 28 A 1	3.750% to 5.088%	2018	1,400	1,500
Debenture 98 A 1	5.625% to 6.125%	2019	13,448	16,334
Debenture 99 A 1	6.500% to 6.750%	2019	1,125	1,350
Debenture 30 B 1	1.550% to 3.870%	2020	1,050	1,225
Debenture 31 A 1	1.630% to 4.221%	2021	1,050	1,200
Debenture 32 A 1	1.636% to 3.480%	2022	1,600	1,800
Debenture 32 C 1	1.510% to 3.160%	2022	9,661	10,197
Debenture 33 A 1	1.330% to 3.489%	2023	9,607	10,112
Debenture 33 B 1	1.285% to 4.114%	2023	7,041	7,412
Debenture 34 B 1	1.200% to 3.190%	2024	13,672	-
Halifax Harbour Solutions				
Debenture 29 A 1	0.900% to 4.329%	2019	9,750	10,400
Wastewater/stormwater				
Debenture 30 A 1	1.510% to 4.500%	2020	2,720	2,890
Debenture 32 A 1	1.636% to 3.480%	2022	2,157	2,277
Debenture 32 B 1	1.380% to 3.156%	2022	28,800	30,400
Debenture 32 C 1	1.510% to 3.160%	2022	4,136	4,365
Debenture 33 A 1	1.330% to 3.489%	2023	16,017	16,860
Debenture 33 B 1	1.285% to 4.114%	2023	10,348	10,893
Debenture 34 A 1	1.245% to 3.347%	2024	5,569	-
Debenture 34 B 1	1.200% to 3.190%	2024	8,586	-
Stormwater				
Debenture 33 A 1	1.330% to 3.489%	2023	513	540
Debenture 33 B 1	1.285% to 4.114%	2023	2,507	2,639
Debenture 34 B 1	1.200% to 3.190%	2024	5,903	-
			<b>166,045</b>	<b>143,373</b>
<b>Payable to Halifax Regional Municipality</b>				
Municipal Finance Corporation – Wastewater/stormwater				
Debenture 24 A 1	2.550% to 5.450%	2014	-	83
Debenture 24 B 1	2.840% to 5.940%	2024	55,000	60,534
Debenture 24 C 1	7.000% to 7.000%	2015	-	59
Debenture 25 A 1	2.970% to 4.560%	2015	174	348
Debenture 25 B 1	3.630% to 4.830%	2020	34	68
Debenture 26 A 1	4.350% to 4.880%	2016	251	376
Debenture 26 B 1	4.265% to 4.410%	2016	10	15
Debenture 27 A 1	4.650% to 5.010%	2017	197	263
Debenture 34 B 1	1.200% to 3.190%	2024	10,000	-
Federation of Canadian Municipalities – Wastewater/stormwater				
Debenture GMIF 1599	1.330% to 3.127%	2014	-	11,000
			<b>65,666</b>	<b>72,746</b>
			<b>231,711</b>	<b>216,119</b>
Less: debt issue costs			<b>1,106</b>	<b>1,016</b>
			<b>230,605</b>	<b>215,103</b>
Less: amount payable within one year			<b>22,374</b>	<b>28,139</b>
			<b>\$ 208,231</b>	<b>\$ 186,964</b>

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:

2016	\$ 22,374
2017	\$ 21,654
2018	\$ 19,496
2019	\$ 20,037
2020	\$ 14,666



# Halifax Regional Water Commission

## Schedule of operations for water service

## Schedule C

Year ended March 31, 2015  
(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
<b>Operating revenues</b>			
Water service	\$ 39,434	\$ 38,727	\$ 34,341
Fire protection	8,953	8,953	9,575
Private fire protection services	562	558	429
<b>Other operating revenue</b>			
Bulk water stations	258	286	241
Customer late payment fees	453	189	256
Miscellaneous	157	128	140
	49,817	48,841	44,982
<b>Operating expenditures</b>			
Water supply and treatment	7,535	7,531	7,284
Water transmission and distribution	9,313	9,026	8,495
Engineering and information services	3,560	3,488	3,416
Environmental services	659	656	693
Customer service	2,083	2,099	2,006
Administration and pension	6,149	5,158	5,305
Depreciation	7,707	7,346	7,118
	37,006	35,304	34,317
<b>Operating profit</b>	<b>12,811</b>	<b>13,537</b>	<b>10,665</b>
<b>Financial and other revenues</b>			
Interest	330	417	344
Other	346	151	235
	676	568	579
<b>Financial and other expenditures</b>			
Interest on long term debt	2,378	2,524	2,487
Repayment of long term debt	6,953	6,974	6,295
Amortization of debt discount	83	83	70
Grant in lieu of taxes	4,340	4,340	4,187
	13,754	13,921	13,039
<b>Excess of revenues over expenditures (expenditures over revenues)</b>	<b>\$ (267)</b>	<b>\$ 184</b>	<b>(1,795)</b>

## Schedule D

# Halifax Regional Water Commission Schedule of operations for wastewater service

Year ended March 31, 2015  
(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
Operating revenues			
Wastewater service	\$ 66,654	\$ 67,131	\$ 54,698
Other operating revenue			
Leachate and other contract revenue	452	431	412
Septage tipping fees	800	608	633
Overstrength surcharge	300	140	226
Customer late payment fees	218	235	192
Miscellaneous	134	105	101
	68,558	68,650	56,262
Operating expenditures			
Wastewater collection	10,482	11,175	10,671
Wastewater treatment	20,405	19,540	18,079
Engineering and information services	3,132	2,721	2,787
Environmental services	1,323	1,351	1,282
Customer service	1,665	1,675	1,597
Administration and pension	4,914	4,070	4,219
Depreciation	10,471	10,196	8,370
	52,392	50,728	47,005
Operating profit	16,166	17,922	9,257
Financial and other revenues			
Interest	330	419	345
Other	2,073	2,074	2,083
	2,403	2,493	2,428
Financial and other expenditures			
Interest on long term debt	6,257	5,907	5,223
Repayment of long term debt	10,994	10,729	10,225
Amortization of debt discount	59	76	61
	17,310	16,712	15,509
Excess of revenues over expenditures (expenditures over revenues)	\$ 1,259	\$ 3,703	\$ (3,824)

# Halifax Regional Water Commission

## Schedule of operations for stormwater service

## Schedule E

Year ended March 31, 2015

(in thousands)

		2015		2014
	Budget	Actual	Actual	
	(Unaudited)			
<b>Operating revenues</b>				
Stormwater site generated service	\$ 5,766	\$ 7,070	\$ 5,775	
Stormwater right-of-way service	3,881	3,881	2,671	
<b>Other operating revenue</b>				
Customer late payment fees	11	12	19	
Miscellaneous	95	91	75	
	9,753	11,054	8,540	
<b>Operating expenditures</b>				
Stormwater collection	5,316	3,992	4,055	
Engineering and information services	641	557	571	
Environmental services	620	647	584	
Customer service	341	343	327	
Administration and pension	1,007	834	864	
Depreciation	403	412	310	
	8,328	6,785	6,711	
<b>Operating profit</b>	1,425	4,269	1,829	
<b>Financial and other expenditures</b>				
Interest on long term debt	507	475	394	
Repayment of long term debt	843	848	652	
Amortization of debt discount	2	4	1	
	1,352	1,327	1,047	
<b>Excess of revenues over expenditures</b>	\$ 73	\$ 2,942	\$ 782	



## Schedule F

# Halifax Regional Water Commission Airport Aerotech system Schedule of operations for water service

Year ended March 31, 2015  
(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
Operating revenues			
Water service	\$ 620	\$ 658	\$ 620
Fire protection	193	193	183
Customer late payment charges	1	1	1
Miscellaneous	6	5	5
	820	857	809
Operating expenditures			
Plant operations	655	569	652
Pumping stations	30	24	24
Water transmission and distribution	106	89	109
Depreciation	43	40	37
	834	722	822
Operating profit (loss)	(14)	135	(13)
Financial and other expenditures			
Interest on long term debt	28	28	30
Repayment of long term debt	54	47	46
	82	75	76
Excess of revenues over expenditures (expenditures over revenues)	\$ (96)	\$ 60	\$ (89)

# Halifax Regional Water Commission

## Airport Aerotech system

### Schedule of operations for wastewater service

## Schedule F

Year ended March 31, 2015

(in thousands)

		2015	2014
	Budget (Unaudited)	Actual	Actual
Operating revenues			
Wastewater service	\$ 613	\$ <b>638</b>	\$ 622
Dewatering	210	<b>210</b>	210
Airplane effluent	80	<b>69</b>	75
Customer late payment charges	1	<b>1</b>	1
	<b>904</b>	<b>918</b>	<b>908</b>
Operating expenditures			
Wastewater treatment	754	<b>756</b>	806
Wastewater/stormwater collection	90	<b>45</b>	37
Depreciation	47	<b>47</b>	37
	<b>891</b>	<b>848</b>	<b>880</b>
Operating profit	13	<b>70</b>	28
Financial and other expenditures			
Interest on long term debt	18	<b>23</b>	27
Repayment of long term debt	44	<b>40</b>	38
	<b>62</b>	<b>63</b>	<b>65</b>
Excess of revenues over expenditures (expenditures over revenues)	\$ (49)	\$ 7	\$ (37)
Excess of revenues over expenditures (expenditures over revenues) for water and wastewater combined	\$ (145)	\$ <b>67</b>	\$ (126)

The Commission no longer provides stormwater services for the Airport Aerotech system effective November 18, 2011.

## Schedule G

# Halifax Regional Water Commission Schedule of regulated activities

Year ended March 31, 2015  
(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
<b>Operating revenues</b>			
Water service	\$ 39,434	\$ 38,727	\$ 34,341
Wastewater service	66,654	67,131	54,698
Stormwater service	9,647	10,951	8,446
Public fire protection	8,953	8,953	9,575
Private fire protection services	562	558	429
Airport Aerotech system	1,434	1,496	1,432
Other operating revenue	1,605	1,165	1,229
	128,289	128,981	110,150
<b>Operating expenditures</b>			
Water supply and treatment	7,521	7,519	7,274
Water transmission and distribution	9,313	9,026	8,495
Wastewater collection	10,482	11,175	10,671
Stormwater collection	5,316	3,992	4,055
Wastewater treatment	19,294	18,642	17,012
Engineering and information services	7,333	6,766	6,774
Environmental services	2,602	2,654	2,559
Customer service	4,054	4,089	3,904
Administration and pension	12,051	10,034	10,369
Airport Aerotech system	1,725	1,570	1,702
Depreciation	18,581	17,948	15,792
	98,272	93,415	88,607
<b>Operating profit</b>	<b>30,017</b>	<b>35,566</b>	<b>21,543</b>
<b>Financial and other revenues</b>			
Interest	660	836	689
Other	2,074	2,026	2,069
	2,734	2,862	2,758
<b>Financial and other expenditures</b>			
Interest on long term debt	9,188	8,957	8,161
Repayment of long term debt	18,888	18,638	17,256
Amortization of debt discount	144	163	132
Grant in lieu of taxes	4,340	4,340	4,187
	32,560	32,098	29,736
<b>Excess of revenues over expenditures (expenditures over revenues)</b>	<b>\$ 191</b>	<b>\$ 6,330</b>	<b>\$ (5,435)</b>



# Halifax Regional Water Commission

## Schedule of unregulated activities

## Schedule G

Year ended March 31, 2015

(in thousands)

	2015		2014
	Budget (Unaudited)	Actual	Actual
Operating revenues			
Dewatering	\$ 210	\$ 210	\$ 210
Septage tipping fees	800	608	633
Leachate treatment and contract revenue	452	431	412
Airplane effluent	80	69	75
Other operating revenue	21	21	21
	1,563	1,339	1,351
Operating expenditures			
Water supply and treatment	14	12	10
Wastewater treatment	1,111	898	1,067
Other	54	56	45
Depreciation	-	6	6
	1,179	972	1,128
Operating profit	384	367	223
Financial and other revenues			
Other	345	199	249
Excess of revenues over expenditures	\$ 729	\$ 566	\$ 472









