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Item No. 12.3
Halifax Regional Council
February 23, 2016

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: Original Signed

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

DATE: February 12, 2016

SUBJECT: Halifax Water 2016/17 Business Plan

INFORMATION REPORT

ORIGIN

HRWC Board Meeting of January 28, 2016

LEGISLATIVE AUTHORITY

Halifax Regional Water Commission Act

BACKGROUND

On behalf of the Halifax Water Board, staff are pleased to present the 2016/17 Business Plan, approved by the Board on January 28, 2016. The 2016/17 fiscal year reflects the second year of the five year business plan approved by the Halifax Water Board in October, 2014. The five year plan was filed with the Nova Scotia Utility and Review Board (NSUARB) in November, 2014 in conjunction with a general rate application for water and wastewater services. The 2016/17 business plan represents the second year of the two year test period contained in that application.

DISCUSSION

Although the five year business plan is a touchstone for the 2016/17 business plan, it is also influenced by the Integrated Resource Plan (IRP) which is a 30 year framework for the strategic direction of the utility. The IRP projected expenditures of $2.6 billion (net present value) over a 30 year period commencing in 2013/14 for; asset renewal [$1,385 million]; regulatory compliance [$598 million]; and growth [$595 million]. The 2016/17 fiscal year will see continued investment in these areas all while ensuring a high level of service for the customers of Halifax Water.

The 2016/17 Business Plan provides an overview of the services provided by Halifax Water (HW) and details on the operating and capital budgets to support the delivery of these services. The Business Plan projects a small surplus as indicated in the pro forma income summary below and reflects the rates approved by the NSUARB in their 2015 Decision. The increase in rates were required to maintain or enhance current levels of service, deliver projects already in progress or approved, address new environmental requirements, and generate more funding to meet infrastructure investment demands.

Pro Forma Income Summary

	Actual 2014/15	Approved Budget 2015/16	**Proposed Budget 2016/17**
Operating Revenues	$130,320	$129,905	**$135,675**
Operating Expenditures	$94,381	$103,614	**$102,425**
Operating Profit	$35,939	$26,291	**$33,250**
Non-Operating Revenue	$3,055	$3,077	**$3,291**
Non-Operating Expenditures	$32,099	$33,818	**$36,386**
Net Surplus (Deficit)	$6,896	($4,449)	**$154**

Note: Consolidated numbers reported above include regulated and un-regulated activities of the Urban Core, Satellite and the Airport/AeroTech Systems.

**Amounts are stated in $Thousands*

The 2016/17 Operating Budget is prepared on an accrual basis (similar to last year) to provide broader information for decision making and be reflective of best practice for budgeting. Accrued amounts include a liability for future employee benefits (pension) as calculated under Canadian Institute of Chartered Accountants (CICA) Handbook Section 3461, which is not currently included in revenue requirements for rate making purposes. If accrued expenses associated with the Section 3461 were omitted, there would be a projected net profit on a cash basis of $3.3 million.

As outlined in the table below, operating expenses are budgeted to decrease $1.2 million or 1.1% compared to the 2015/16 Operating Budget. Depreciation expense will increase by $0.3 million or 1.7%, as will debt servicing by $2.5 million or 8.5% when compared to the 2015/16 Operating Budget.

	Actual 2014/15	Approved Budget 2015/16	**Proposed Budget 2016/17**
Operating Expenditures	$94,381	$103,614 *9.8%*	**$102,425** ***-1.1%***
Depreciation	$18,036	$20,812 *15.4%*	**$21,158** ***1.7%***
Debt Servicing	$27,759	$29,239 *5.3%*	**$31,723** ***8.5%***

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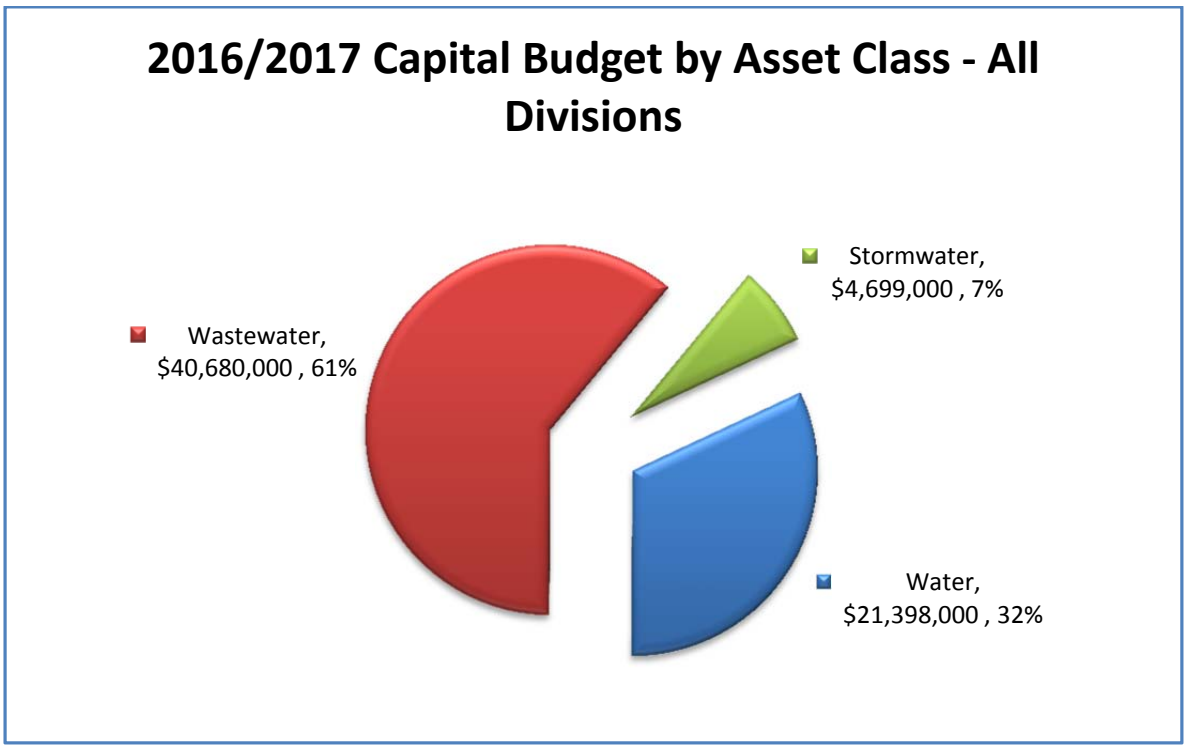
The utility faces pressure associated with asset renewal, growth, and compliance with regulatory requirements, as described in the IRP. The utility has been successful in obtaining external funding to address capital needs through the federal Building Canada fund with formal approval received for the upgrade and expansion of the Aerotech Wastewater Treatment Facility and several water transmission main projects. In partnership with the HALIFAX Municipality, efforts will be made to secure additional funding from infrastructure programs recently announced by the federal government. The 2016/17 Capital Budget calls for expenditures just under $67 million as outlined in the graph below.



Although a general rate application is not envisioned for this fiscal year, it is possible that stormwater rates could be adjusted as a result of revisions to the Cost of Service Manual. An application to revise the Cost of Service Manual was filed in October, 2015 as more fully described in the attached report.

FINANCIAL IMPLICATIONS

Operational and capital Initiatives contained in the 2016/17 Business Plan are fully funded through rates approved by the Nova Scotia Utility and Review Board. Accordingly, there are no financial implications to the Halifax Regional Municipality other than a blanket guarantee for debentures issued through the Municipal Finance Corporation.

COMMUNITY ENGAGEMENT

As facilitated through Halifax Water and Nova Scotia Utility and Review Board regulatory processes in conformance with the Public Utilities Act.

ATTACHMENTS

Attachment A - Halifax Water 2016/17 Business Plan

A copy of this report can be obtained online at http://www.halifax.ca/council/agendasc/cagenda.php then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 902.490.4210, or Fax 902.490.4208.

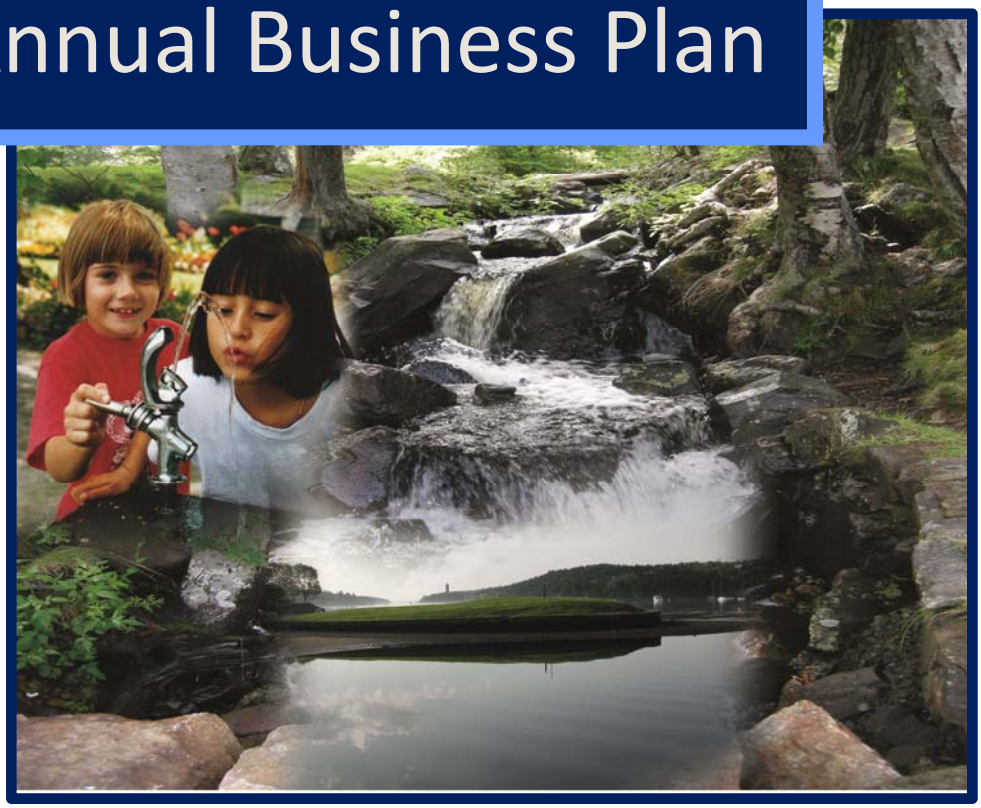
Report Prepared by: Carl D. Yates, M.A.Sc., P.Eng., General Manager, Halifax Water, 902.490.6207

Report Approved by: Original Signed

Carl D. Yates, M.A.Sc., P.Eng., General Manager, Halifax Water, 902.490.6207

Halifax Water
Halifax Regional Water Commission

2016/17 Annual Business Plan



Approved by the Halifax Water Board
January 28, 2016

Glossary

AMI	Advanced Meter Infrastructure
AM	Asset Management
AMP	Asset Management Plan
AMR	Automated Meter Reading
BMP	Best Management Practice
CAD	Computer Aided Drafting
CCC	Capital Cost Contribution
CHP	Combined Heat and Power
COMFIT	Community Feed-In Tariff
CRM	Customer Relationship Management
DOE	Department of Energy
E&IS	Engineering & Information Services
EMAP	Energy Management Action Plan
EMS	Environmental Management System
ERU	Equivalent Residential Unit
GIS	Geographic Information System
H2O	Help to Others (Program)
HW	Halifax Water
ICI	Industrial Commercial Institutional
IFRS	International Financial Reporting Standards
IRP	Integrated Resource Plan
NSE	Nova Scotia Environment
NSERC	Natural Sciences and Engineering Research Council
NSPI	Nova Scotia Power Incorporated
NSUARB	Nova Scotia Utility and Review Board
OMM	Operational Maintenance Management
RDC	Regional Development Charge
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Practices/Procedure
UV	Ultraviolet
WCB	Workers Compensation Board
WRWIP	West Region Wastewater Infrastructure Plan
WSER	Wastewater System Effluent Regulations
WWTF	Wastewater Treatment Facility

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APPENDICES

1. INTRODUCTION

Following the 2007 transfer of wastewater and stormwater assets from HALIFAX Municipality, Halifax Water became the first regulated and integrated water, wastewater and stormwater utility in Canada. With this expanded mandate, the utility took on a new mission to "provide world class services to our customers and our environment" and vision as fully described in Appendix A. Since 2007, Halifax Water has established a framework for sustainable infrastructure with a focus on asset renewal, regulatory compliance and growth. This strategic framework is paramount to attaining a high level of service for over 95,000 customers and remaining committed to environmental stewardship. Halifax Water delivers three distinct services through five departments; Water Services; Wastewater and Stormwater Services; Corporate Services, Engineering and Information Services; and Regulatory Services as described within this document and illustrated in Appendix B. Staff of Halifax Water recognize the synergies inherent in a combined utility and is becoming increasingly aware of the nexus between water and energy.

The 2016/17 fiscal year reflects the second year of the five year business plan approved by the Halifax Water Board in October, 2014. The five year plan was filed with the Nova Scotia Utility and Review Board (NSUARB) in November, 2014 in conjunction with a general rate application for water and wastewater services. The 2016/17 business plan represents the second year of the two year test period contained in that application.

2. EXECUTIVE SUMMARY

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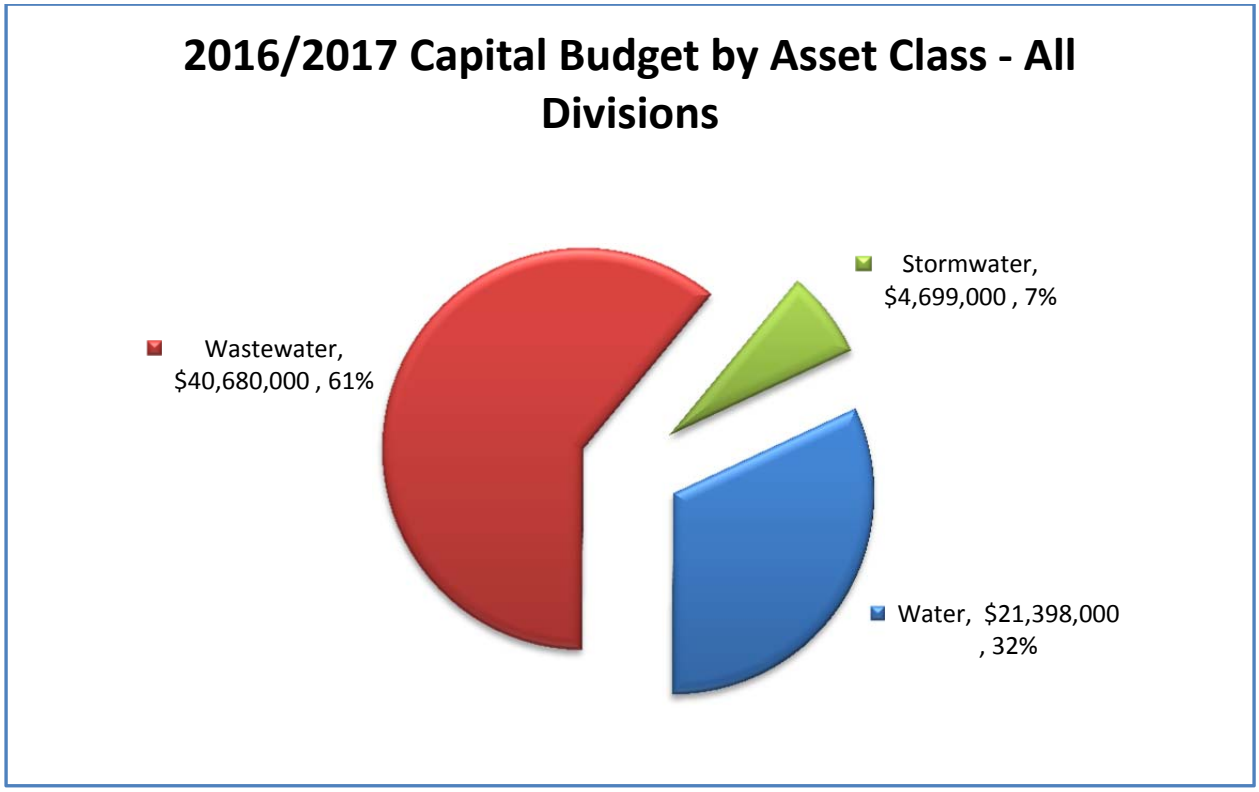

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3. SERVICE OVERVIEW

3.1 Water Services

The Water Services Department is responsible for operating and maintaining the municipal water system "from source to tap". The Water Services department is also charged with providing SCADA (Supervisory Control and Data Acquisition) and process control services for all of Halifax Water. The department is designed to both maintain and operate the water system as a holistic system, with individual managers who have clear accountability for clearly defined parts of the system. The Water Services Department provides the following services:

- **Source Water Protection:** Managing and protecting watershed land, developing and maintaining source water plans, enforcement of Protected Water Area and other relevant source water regulations, source water community relations including working with and developing watershed advisory boards, real property maintenance of source water lands, and forestry management of watershed lands.

- **Water Quality Management:** Water quality planning, water quality monitoring, treatment process support to treatment plants, customer inquiries and investigations, water quality support to capital projects, policy development, research and management of the Halifax Water – Natural Sciences and Engineering Research Council (NSERC) Industrial research chair at Dalhousie University.

- **Water Supply Plant Operations:** Operation and maintenance of 3 large water supply plants (Pockwock, Lake Major and Bennery Lake), 6 small systems, 6 dams, two emergency water supplies and re-chlorination stations.

- **Distribution System Operations:** Operation and maintenance of the water distribution and transmission systems. The system is managed according to three geographic regions with responsibility for over 1500 km of transmission and distribution mains, 8,200 fire hydrants, 85,000 service connections, 134 pressure control/flow metering facilities, 22 pumping stations, 23,000 valves and 15 water storage facilities.

- **Technical Services:** Operation and maintenance of the SCADA system and the process communications network; implementation of the SCADA Master Plan, process control cyber security, instrumentation maintenance, electrical maintenance, maintenance of water pumping stations, and operation and development of the process data warehouse.

Further, embedded within the department, Water Services is responsible for the following major programs.

- **Water Loss Control:** Halifax Water was the first utility in North America to adopt the International Water Association (IWA) methodology for managing leakage in the distribution system. Efforts save $650,000 per year in treatment chemical and electricity costs and have reduced water main breaks by 20%, saving $500,000 in repair costs annually. The program has won several national awards and Halifax Water staff are in demand to share expertise with industry and other utilities.

- **NSERC-Halifax Water Industrial Research Chair in Water Quality and Treatment:** This program, carried out in partnership with Dalhousie University over the last ten years has realized significant operational savings, improved water quality and influenced Halifax Water policy. The Research Chair has produced 46 peer reviewed research papers in world recognized scientific journals over the last five years and has allowed Halifax Water to become industry recognized leaders in areas such as lead service line replacement and biofilm control in distribution systems. Several Halifax Water employees were trained as students under the Research Chair.

- **ISO 14001 Registered Environmental Management System:** Halifax Water first implemented an ISO 14001 environmental management system (EMS) at the J. Douglas Kline (Pockwock) Water Supply Plant in 2003. In subsequent years, the water supply plants at Lake Major and Bennery Lake have been registered and work is currently underway to register large wastewater plants. Implementation of the EMS has resulted in improved facility management and a rigorous system of checks and balances across plant operations, greatly reducing the risk of environmental incidents and emergencies.

- **Supervisory Control and Data Acquisition (SCADA) Master Plan:** Subsequent to the 2007 merger, Halifax Water found itself with 6 legacy SCADA systems from the pre-existing utilities and regions and dozens of versions of control software licenses. The master plan completed in 2011 set a road map to consistent and standardized equipment and platforms for all services over a 5 year period through 6 major and 22 minor projects.

3.2 Wastewater/Stormwater Services

The Wastewater and Stormwater Services Department is responsible for operating and maintaining municipal systems from “drains back to the source again”. In this regard, the Wastewater and Stormwater Services department has a mandate to protect the environment while providing world class collection and treatment services to its customers. The department also provides corporate Fleet and Building Services. These essential services are delivered through 6 managers who are responsible for both stormwater and wastewater activities in their regions. The supervisors and the field crews

carry out both wastewater and stormwater related duties. The department is also supported by an Operations Engineer position.

3.2.1 Wastewater Services

The Wastewater Services strives to provide uninterrupted delivery of the following services:

- **Wastewater Treatment Plant Operations:** Operation and maintenance of 16 wastewater treatment facilities (WWTFs) and associated infrastructure, regulatory reporting, and implementing and coordinating capital upgrades with other Halifax Water departments. As per new federal regulations; 2 plants are classified as very large, 3 are large, 2 are medium and 9 are small capacity.

- **Biosolids Processing Facility (BPF):** Liquid transport, dewatering and processing of sludge, operation and maintenance of various dewatering equipment at WWTFs, administering trucking contracts for dewatered biosolids and BPF operations contract, and processing of biosolids from on-site septic systems. This facility, located at the Aerotech Industrial Park, produces a soil amendment for beneficial use in agriculture. Staff from Treatment Plant Operations carry out these related activities.

- **Collection System Operations:** Operation, repair and maintenance of the wastewater collection and trunk sewer system. The system is managed according to three geographic regions with responsibility for over 1700 km of collection pipes, 172 Pump Stations, 21 Combined Sewer Overflow facilities and 85,000 service connections.

- **Fleet and Building Maintenance Services:** Maintenance and repair of approximately 200 vehicles ranging from smaller utility vehicles to large excavation equipment, replacement of vehicles on a life cycle costing basis, and records management. This section of the department is also responsible for maintenance and physical security of corporate buildings and any other logistical support required for efficient operation of the department.

3.2.2 Stormwater Services

The Stormwater Services is responsible for operation and maintenance of stormwater infrastructure within the public right of way or within easements. This service has undergone significant changes over the past 2 years and continues to progress to achieve a higher level of service.

- **Collection System Operations:** Operation, repair and maintenance of the stormwater collection and trunk sewer system. The system is managed by shared crews with Wastewater Services within the three geographic regions with responsibility for over 850 km of stormwater collection pipes, 28 stormwater retention facilities and over 600 km of ditches and associated cross culverts and driveway culverts.

- **Stormwater Service Implementation:** Assisting in investigation of utility billing related issues such as determination of service, billing complaints and public outreach to raise awareness of stormwater issues. Establishing responsibility of service with other partners such as HALIFAX municipality and the Province of Nova Scotia. Continuous improvement of the service is envisioned via the development of performance standards. Business processes along with inspection, maintenance and repair schedules are being reviewed to provide the appropriate level of service.

3.3 Engineering and Information Services

The Engineering & Information Services (E&IS) Department is responsible for the provision of engineering and technical services relating to the planning, design, construction, and maintenance of water, wastewater and stormwater infrastructure and related asset information. E&IS also provide and support the hardware, software and related services for the electronic business applications required to support the utility. All E&IS staff work out of 450 Cowie Hill Road.

The E&IS department has four core areas of responsibility and 7 specific sections delivering programs.

- ASSET MANAGEMENT
- INFRASTRUCTURE
  - Water
  - Wastewater/Stormwater
  - Wastewater Treatment Facilities
- ENERGY EFFICIENCY
- INFORMATION MANAGEMENT
  - Engineering Information
  - Information Services

The **Asset Management** section focuses on the development of the Asset Management program (including the overall strategy, inventories, condition and performance assessments, and development of AM plans), the modeling programs, long term master planning (including implementation of the Integrated Resource Plan (IRP)), and the development of the 5 Year and 1 Year Capital Budget.

The **Infrastructure** sections are responsible for the design, construction and project management for water, wastewater and stormwater capital projects. These three sections also provide support for master planning and asset management relating to the core infrastructure.

The **Energy Efficiency** section is responsible for the provision of engineering services related to energy management and energy efficiency of water, wastewater and stormwater infrastructure.

The **Engineering Information** section is responsible for the corporate Geographic Information System (GIS) including the maintenance and distribution of all record information. The section is also responsible for on-going GIS development including both desktop and mobile GIS applications. This section also supports capital projects and other initiatives through Computer Aided Drafting (CAD) and map production.

The **Information Services** section provides administration of services relating to network resources (storage, servers, printers, etc.), users, access control and network security, server hardware and operating systems. All computer equipment is managed by the IS section. This includes desktops, laptops, monitors, printers and servers. The IS section is the first line of support for all IT related problems or requirements. Corporate desktop software is administered by the IS section. Provides business analysis and project management as required for IT projects.

3.4 Regulatory Services

The Regulatory Services department was recently formed as an amalgamation of the former Environmental Services Department and the Development Approvals division of E &IS. The department delivers programs through four divisions; environmental engineering; development approvals; safety and security; and regulatory compliance.

The **Environmental Engineering Group** has been supporting the Stormwater Billing Exemption process and the proposed modifications to the stormwater cost of service manual, currently being reviewed by the Nova Scotia Utility and Review Board (NSUARB) . In the interim, with completion of the bulk of stormwater billing reviews, the Environmental Engineering group will focus on finalizing Standard Operating Practices (SOPs) to better define the daily operations and tasks of the Environmental/Pollution Prevention Officers. Focus will be placed on establishing SOPs, cross connection investigations, illegal stormwater connections, and ditch infilling. Environmental Engineering will be evaluating software to assist in tracking investigations and appurtenances (i.e. grease traps) installed in commercial/industrial customers' facilities. The group will continue to provide support to the Wet Weather Management Program, focusing on investigations in Lieblin Park, and customer engagements in Springfield Lake and North Preston.

The **Development Approvals Group** will continue to manage permit applications for service extensions and connections to HRWC's existing infrastructure, inclusive of the Cross Connection Control Program. The management of existing and new Capital Cost Contribution (CCC) charges for Master Plan communities remains a major component of the division's responsibilities. The Regional Development Charge (RDC) was approved two years ago and Stakeholder consultations will commence this year as part of the five year review. Initial stakeholder consultation will be implemented in conjunction with the West Region Wastewater Infrastructure Plan. The Development Approvals Group is also managing the Local Infrastructure Capacity Study for the Regional Centre on behalf of HALIFAX Municipality.

The Development Approvals Group also incorporates the Land Management program which supports Capital Projects and Operations in securing easements, land purchases for infrastructure and land leases.

The **Safety and Security Group** provides support for the entire organization with respect to the safety training program, including documentation of safety training requirements to ensure employees have the appropriate training to safely conduct their daily activities and manage risk to the utility. The group also reviews contract language within the tendering process, and engages contractors and consultants on safe work practices and expectations.

The Safety and Security division is also responsible for the development and update of the corporate emergency response plan including emergency response training. Halifax Water continues to participate in Public Safety Canada's Regional Resilience Assessment Program for treatment facilities. Facilities are evaluated using the Critical Infrastructure Resilience Tool, identifying areas where security and protection of critical assets can be improved or enhanced. The program further expands on formal risk assessments previously undertaken by Halifax Water.

The **Regulatory Compliance Group** conducts sampling of the water treatment and distribution systems for bacteria and residual chlorine, ensuring compliance with Canadian Drinking Water Guidelines and Operational permits issued by Nova Scotia Environment (NSE). Similarly, sampling is completed for wastewater effluent parameters for compliance with permits issued by NSE, consistent with new federal regulations. The group is also tasked with compiling and submitting reports associated with the sampling results to NSE. Regulatory Compliance also ensures that operating permits are renewed prior to their expiry. The group continues to support E&IS and Wastewater Operations staff on changes to regulatory permits including the Wastewater System Effluent Regulations (WSER) and assists in developing an implementation plan for required upgrades.

3.5 Corporate Services

Corporate Services was recently formed with the consolidation of Human Resources with the Finance and Customer Service Department. The Department consists of 6 divisions,

with employees providing service to internal and external customers. Services provided include Finance, Accounting, Procurement, Human Resources, Customer Service, and Metering and Billing.

The **Finance Group** is responsible for development of operating budgets, funding plans for the capital budget, rate applications and financial modeling for business plans. This group assists Engineering in the preparation of capital budgets and confirms availability of funding sources. The group is responsible for forecasting revenues and expenditures, including associated trend analysis, responsible for pension plan administration, internal control testing, and quality assurance activities around financial transactions including payroll.

The **Accounting Group** is responsible for timely and accurate financial reporting, financial accounting, financial statements, revenue and cash flow, development and implementation of accounting procedures and internal controls, fixed asset accounting, financial analyses and annual audit.

Procurement directs the planning and delivery of Procurement services to the organization ensuring compliance with corporate policies and Provincial legislation. This group develops and implements monitoring and reporting of systems, programs, procedures for inventory and procurement to support acquisition of goods and services to enable delivery of the business plan, operating and capital budget objectives.

Human Resources is responsible for the effective delivery of all Human Resource initiatives including; effective workforce planning, organizational change and development, recruitment functions, disability management, health and wellness initiatives, labour/employee relations, compensation and benefit functions, pension administration, and employment equity.

Customer Services is responsible for customer service delivery to external and internal customers through the Customer Care Centre, and manages all customer contacts, establishes corporate customer service standards, goals and objectives, and coordinates business processes in the area of customer service with a focus on service and process improvement.

Metering and Billing is responsible for end to end functions of meter installation, maintenance, reading, sampling, testing, establishment of standards, and billing customers in a timely and accurate manner.

The most significant activities for Corporate Services in the 2016/17 year are:

- Begin the transition to improved meter technology with the Advanced Meter Infrastructure (AMI) project. This item is discussed in greater detail in section 5.2, and next steps include finalizing the business case and securing necessary approvals to proceed.

- Improving service to customers by optimizing use of the new Customer Relationship Management (CRM) system which goes live in February 2015, and centralizing all customer calls related to water, wastewater and stormwater. This item is discussed in greater detail in section 5.1.

- Finalizing the first set of International Financial Accounting and Reporting Standards (IFRS) compliant financial statements for the utility, for the fiscal year ended March 31, 2016.

- Implementing the decision from the February 2015 Stormwater Cost of Service Hearing; and filing an Application to adjust Stormwater Rates in 2016.

- Complete a review of Rate Affordability and the effectiveness of HRWC's existing low-income assistance initiative, the Help to Others (H2O) Program".

- Completing the implementation of changes to the HRWC Employees' Pension Plan, including adjusting contribution rates to reflect the plan re-design and January 1, 2016 Actuarial Valuation and proceeding with further Amendments to the Pension Plan to reflect changes to the NS Pension & Benefit Act which came into effect June 1, 2015.

- Completing a review of the governance, policies, and administrative processes for the HRWC Employees' Pension Plan with a view to ensuring the governance and administrative policies reflect best practice and current standards.

- Improving communication and information available to employees on Pension and other Benefits through development of a pension plan website, and refreshing the HRWC Intranet site.

- Improving employee morale, labour relations, and promoting a workplace that is respectful and civil for all employees. There are several initiatives planned to support these goals, including additional supervisory training, implementation of a new program to increase respect in the workplace; and moving toward a service delivery model for Human Resources that will focus on strategic issues and support to other Departments, rather than day to day transactional activities.

4. BUDGET SUMMARY

4.1 Capital

Halifax Water's 2012 IRP identified a 30 year capital investment plan valued at $2.6 Billion (net present value). As part of the utility's overall mission, the capital budget program focuses on three main strategic drivers; asset renewal; regulatory compliance; and growth.

The capital program helps ensure that Halifax Water continues to provide world class services in a cost effective and efficient manner with a focus on long term sustainability.

The Capital Budget includes an annual 1 year and 5 year capital plan. Capital projects are defined as newly acquired or constructed item with a value greater than $5000 and a life expectancy beyond one year. The Capital Budget document includes four general asset categories: Water, Wastewater, Stormwater and Corporate Projects.

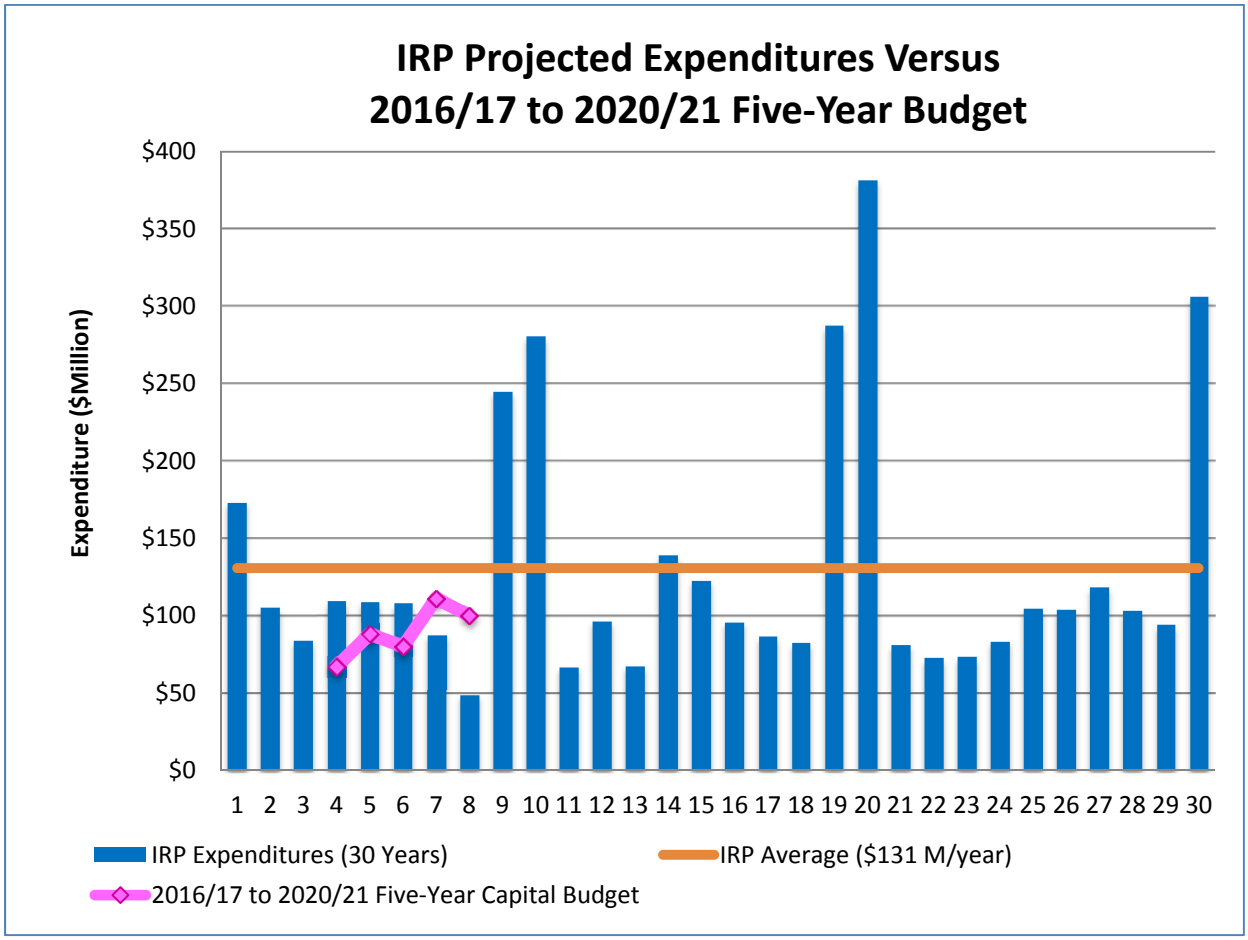
The detailed 1 year and 5 year Capital Budget documents are attached as Appendix C.

The summary totals for the four asset classes for the 1 Year and 5 Year capital budget are as follows:

Asset Class	Year 1 2016 / 2017	Years 1 - 5 2016/17 - 2020/21
Water	$16,453,000	$101,948,000
Wastewater	$35,838,000	$246,164,000
Stormwater	$3,951,000	$38,170,000
Corporate Projects	$10,535,000	$59,710,000
TOTAL	$66,777,000	$445,992,000

The capital program balances near-term needs with long-term investments across all asset classes.

The following chart shows the current proposed 5 year capital expenditure plotted against the IRP capital expenditure recommendation. The chart indicates a continued general increase in capital expenditures towards the target level.



The following provides highlights of the 2016/17 Capital Budget.

Major water capital projects include:

- Macdonald Bridge Transmission Main Replacement: $3,295,000
- Distribution System Main Renewal Program in conjunction with HRM Streets program: $4,000,000
- Lake Major Water Supply Plant - New Diesel Generator: $1,900,000
- Asset Renewal and Process Upgrades – Water Supply Plants: $2,385,000

Major wastewater capital projects include:

- Collection System Renewal Projects integrated with HRM Streets program: $1,500,000
- Lateral Replacements: $2,190,000
- Wastewater System – Trenchless Rehabilitation Program: $1,500,000
- Belmont WWTF Decommissioning - $250,000
- Aerotech WWTF Upgrade & Expansion - $13,930,000
- Corporate Flow Monitoring Program: $660,000
- Balsam Road Pumping Station Elimination: $770,000
- Bedford Pumping Station Rehabilitation: $2,850,000

Major Stormwater capital projects include:

- Sackville Crossroad Stormwater System Renewal: $1,100,000
- Stormwater System Renewal Projects Integrated with HRM Streets Program: $650,000
- Culvert Renewals: $1,277,000
- Sullivan's Pond Storm Sewer Replacement – Design: $ 250,000

Major corporate capital project include:

- GIS Data Program: $1,000,000
- Computer Network and Hardware Upgrades: $380,000
- Computerized Maintenance Management System: $1,500,000
- Corporate Fleet: $1,655,000
- AMI/AMR Meter System Upgrade: $3,300,000
- Asset Management Program: $600,000

The Capital Budget is funded from a variety of sources including capital asset depreciation accounts, debt, reserves, capital cost contributions and external cost sharing.

Capital funding sources:

- Depreciation (funded within the rates)
- Debt
- Development charge reserves
- External cost sharing

The Debt Strategy as approved by the Halifax Water Board, and accepted by the NSUARB, provides a funding strategy that is fair, equitable and cost effective. The debt strategy sets limits for the debt service ratio (DSR) at 35% and a target debt to equity ratio of 40%/60%.

The funds for the overall Capital Budget will be generated from a combination of sources, as detailed below. The planned utilization of debt is consistent with the Debt Strategy. HRWC will manage risk around projected Regional Development Charges through reprioritization of growth projects or additional utilization of debt if required.

2016/17 Capital Budget Funding Sources

Water:	Depreciation	9,631,878
	Debt	11,433,122
	RDC	0
	External Funding Build Canada	59,000
	Capital Cost Contributions	238,000
	Energy Rebates	36,000
	TOTAL	**21,398,000**
Wastewater:	Depreciation	14,035,907
	Debt	16,798,093
	RDC	300,000
	External Funding Build Canada	9,055,000
	Capital Cost Contributions	0
	Energy Rebates	16,000
	Unregulated Capital Funds	475,000
	TOTAL	**40,680,000**
Stormwater:	Depreciation	834,000
	Funds available from prior years' capital	150,000
	Debt	3,715,000
	TOTAL	**4,699,000**
Total Capital Funding:		**$66,777,000**

4.2 Operations

The operating budget prepared for 2016/17 is based on year 2 of the 5 Year Business Plan approved by the HRWC Board in October 2014, and Test Year 2 of the 2014 Rate Application.

A rate increase for water and wastewater will take effect April 1, 2016. The operating budget shows a small surplus and reflects the increased rates which were required to maintain or enhance current levels of service, deliver projects already in progress or approved, address new environmental regulations, and generate more funding to meet infrastructure investment demands.

Some of the primary operating budget drivers and assumptions are:

REVENUES:

- Total revenues are projected to be 4.4% or $5.7 million greater than last year.
- Consumption will continue to decline related to water and wastewater. Consumption is projected to decrease 3.0% on an annual basis.
- 700 or roughly 0.8% new customer connections are projected over the fiscal year based on the 4 year historic average (2011-2014).
- Revenues from unregulated business activities are increasingly important to mitigate future revenue requirements from rates. Unregulated revenues are used to pay for some expenses which would otherwise be funded by rate-regulated activities, and are also used to fund unregulated expenses.
- Some fees for un-regulated activities such as septage tipping, treatment of effluent from airplanes, will be adjusted April 1, 2016 to ensure that Halifax Water is fully recovering expenses and generating a return on investment for the rate base.
- Rates for water and wastewater service increase April 1, 2016. The average household is projected to see an increase of 7%.

Alternative Revenue - Halifax Water has had success generating alternative revenues aside from user fees on both the regulated and unregulated side of the business. On the regulated side, Halifax Water has entered into agreements for the sale of land deemed to be no longer used or useful for utility purposes. With NSUARB approval, revenue from land sales can be used as a source of funds for capital projects related to the delivery of water services in recognition that the land was originally purchased with water-rate base funds. As much of the surplus land has been sold, this will not be a significant source of funds in the future.

Notwithstanding limitations for generating revenue from the regulated side of the business, there has, and will continue to be, opportunities from the unregulated side. Currently, Halifax Water generates revenue from third-party contracts for water and wastewater treatment. Halifax Water also generates revenue for the lease of land for telecommunications facilities throughout the municipality in recognition that reservoir sites are located on higher elevations that afford more direct line of site for telemetry. In conjunction with these leases, Halifax Water installs telecommunications equipment on these facilities for its own needs for the ultimate benefit of the water, wastewater, and stormwater rate base. As Halifax Water continues to expand the SCADA system in accordance with its master plan, further opportunities for leases and hosting of Halifax Water equipment will be realized.

In recognition of Halifax Water's expertise in water-loss control, the utility offers a wide range of related services to generate revenue. These range from leak-detection services for Halifax Water customers and other municipalities to consulting services under contract to engineering firms and municipalities. There is great potential to expand these services to generate additional revenue and, at the same time, provide professional development opportunities for staff.

Halifax Water also recognizes that its assets can be leveraged to bring in revenue from energy generation. This includes projects to generate electricity from wind turbines and control chambers where water pressure is reduced. Both of these opportunities have been developed for interface with the Nova Scotia Department of Energy's Community Feed-In Tariff (COMFIT) program, which provides preferential rates to feed electricity into the Nova Scotia Power Incorporated (NSPI) distribution grid. Halifax Water has a lease agreement with Chebucto Wind Field Inc. who holds a COMFIT certificate for a wind farm near Pockwock Lake that is now in commercial operation. Through efforts of Halifax Water staff, a Ministerial Directive was issued through the Department of Energy (DOE) in 2012 to approve the recovery of renewable energy within water distribution systems at "run-of-the–river" rates. To that end, Halifax Water has received two COMFIT certificates for the installation of hydrokinetic turbines in the Orchard and Lucasville control chambers. The Orchard installation went into commercial operation in October, 2014. These projects are structured to ensure they are compliant with the Public Utilities Act with the recognition that regulated activities cannot subsidize the unregulated side of the business.

In partnership with HALIFAX Municipality, Halifax Water has also studied the potential for a green thermal utility whereby energy can be extracted from the heat in sewage and delivered through a local pipe distribution system in the vicinity of treatment facilities. The planned redevelopment of the Cogswell interchange in Halifax will provide an opportunity to advance this concept since the Halifax Wastewater Treatment Facility (WWTF) is adjacent to the Cogswell interchange. A feasibility study is currently underway and the business plan for 2016/17 includes funds for preliminary design.

In an effort to be open and transparent to stakeholders including the NSUARB, Halifax Water discloses revenue and expenses associated with unregulated business separately

within the financial statements and budgets. Net gains from these activities ultimately go to the benefit of the rate base as they are closed out to accumulated operating surplus/(deficit) each fiscal year.

EXPENSES:

Halifax Water's Operating Budget is shown on an accrual basis for 2015/16 to provide better information for decision making and be reflective of best practice for budgeting. There is an accrued amount regarding the liability for future employee benefits (pension) as calculated under the Chartered Professional Accountants (CPA) Handbook Section 3461 that, for rate making purposes, is not currently included in the revenue requirements.

The largest components of Halifax Water's consolidated operating budgets are salaries & benefits, electricity, debt servicing, depreciation, dividend and chemical costs.

Salaries and Benefits – The annual increase allowance is 2% with an additional 0.5% to allow for the impact of step increases within salary bands or reclassification of positions; and increases in benefits. Pension expenses are projected to decrease by 17.3% or $1.7 million in 2016/17 due to the re-design of the HRWC Employees' Pension Plan. The reduction in pension plan expenses will not be known with certainty until the Actuarial Valuation at January 1, 2016 is completed.

Electricity – Budgets were established based on an assumption of electricity, fuel, oil and natural gas rate increases in each specific year. The impact of these increases is expected to be partially offset by the formal Energy Management Program.

- Electricity – 7%
- Furnace Oil – 5%
- Natural Gas – 10%

Debt Financing – New debt payments are budgeted to support the 2016/17 additions to utility plant in service. The amount and timing of the new debt will be determined by the completion date of the projects and the financing rates and options available. It is estimated total debt servicing will increase to $31.9 million; an 8.5% increase from 2015/16. Halifax Water's capital financing strategy is designed to maintain a debt service ratio of 35% or less; and to use a mixture of infrastructure funding, development related charges (reserves), depreciation; and debt.

Depreciation - As Halifax Water's assets and future capital budgets increase, so do depreciation expenses. Depreciation is an integral funding source to support rehabilitation of the existing infrastructure, as well as new infrastructure and upgrades to meet future servicing demands and changing environmental regulation. Depreciation is projected to increase from $20.8 million in 2015/16 to $21.2 million in 2016/17, an increase of 1.7%.

Dividend to the HALIFAX Municipality - The water dividend agreement was renewed in September, 2014 for a 5 year term (April 1, 2015 - March, 2020). The dividend is projected to grow from $4.6 million in 2015/16 to $4.7 million in 2016/17.

Chemical Costs – Chemicals are tendered annually in January for optimal pricing. Chemical cost increases of 5% are anticipated for next year.

On a consolidated basis, operating expenses are projected to decrease from $103.6 million in 2015/16 to $102.4 million in 2016/17 or 1.2%. Operating revenues are projected to increase from $130.0 million in 2015/16 to $135.7 million in 2016/17 or 4.4%. Non-operating revenues are projected to increase from $3.1 million to $3.3 million, and non-operating expenses will increase by 7.6% or $2.6 million over 2015/16 due to increased debt-servicing costs.

Pro Forma Income Summary

Pro Forma Income Summary

	Actual 2014/15	Approved Budget 2015/16	**Proposed Budget 2016/17**
Operating Revenues	$130,320	$129,905	**$135,675**
Operating Expenditures	$94,381	$103,614	**$102,425**
Operating Profit	$35,939	$26,291	**$33,250**
Non-Operating Revenue	$3,055	$3,077	**$3,291**
Non-Operating Expenditures	$32,099	$33,818	**$36,386**
Net Surplus (Deficit)	$6,896	($4,449)	**$154**

Note: Consolidated numbers reported above include regulated and un-regulated activities of the Urban Core, Satellite and the Airport/AeroTech Systems.

**Amounts are stated in $ Thousands*

As of March 31, 2015, Halifax Water had an accumulated operating surplus of $2.9 million. Halifax Water is targeting an accumulated operating surplus of 3% of annual revenue to mitigate risk. Accumulated operating surplus can also be used to fund future additions to utility plant in service.

Halifax Water has an efficient capital structure which has been reviewed and accepted by the NSUARB and was developed based on the policies of other utilities, its longer-term capital needs, and consideration of fairness to present and future ratepayers. Utilization of

debt is a key component of the capital structure. Debt impacts the operating budget and, therefore, the future rate requirements in several ways:

1. Increased debt payments need to be accommodated through rates.
2. Increased depreciation as the capital program grows must be accommodated through rates.
3. Operating costs of new capital needs to be accommodated through rates.
4. Capital requirements not funded by debt will increase the requirement of capital from operating funding through rates.

Different financing alternatives are considered, taking into account rate stability and affordability, Halifax Water long term financial sustainability, and intergenerational equity. The debt strategy approved for Halifax Water concludes that some appropriate ratios for Halifax Water to utilize are:

1. Target Debt Service Ratio of 35%
2. Target Debt/Equity Ratio of 40%/60%

In essence, the two targets serve as a framework for Halifax Water's utilization of debt. Long-term debt is projected to increase from $231.7 million at March 31, 2015, to $240.4 by March 31, 2016. It is estimated total debt servicing will increase from $29.2 million in 2015/16 to $31.9 million by 2016/17, and the debt service ratio will be 23.4%.

Halifax Water has a long term goal to keep rates for combined services below 2% of median household income. The cost of annual combined services for an average household is projected to be approximately 0.94% of median household income in 2016/17.

Halifax Water will be conducting some work on rate affordability and support to low income customers in 2016/17. Although Halifax Water considers rate affordability and has a rate smoothing strategy, some households on low income may still experience affordability issues. In recognition of the financial burden on households with low income, Halifax Water introduced the H2O program on April 1, 2011 to mitigate the impact of rising water bills. The H2O program provides dedicated funding for low income households to offset water bills, administered through the Salvation Army, similar to other heating fuel or electricity bill assistance programs. Funds for the program are derived from unregulated activities of the utility with annual base funding of $35,000 and additional utility funds to match employee donations.

4.3 Cost Containment

Halifax Water reports semi-annually to the HRWC Board, and annually to the NSUARB the results of cost containment activities. The next cost containment report will be filed with the NSUARB by June 30, 2016. Halifax Water achieved cost containment savings of 1.7 million in 2014/15 and is projecting $2.8 million for 2015/16. Some of these are on-going, and some are one time in nature. Some key initiatives in 2016/17 that should help the utility contain costs or increase effectiveness are the implementation of new technology such as a customer relations management (CRM) system and computerized maintenance management system (CMMS). There will be energy savings from the on-going energy management program, and increased revenues from energy related projects that help offset the utility's costs. In 2016/17 the utility will commence a program to replace old meter technology, that in the long term should result in cost containment as well as increased service to customers.

5. STRATEGIC INITIATIVES

5.1 Customer Care Centre

The first phase of Customer Service transitioning from a historical billing and account inquiry call centre to a full service Customer Care Centre is the implementation of a customer relations management (CRM) system. Cayenta Utilities has been selected as the CRM system and the go-live implementation date is early February 2016.

Cayenta Utilities CRM solution will provide tools to improve customer service. Customer Care will have the ability to record various customer interactions (telephone, email, facsimile), use scripts so that call centre staff can provide consistent information as well as automate workflow processes. Reporting features will provide the ability to track issues and productivity based on information logged within the system.

The second phase will include expanding services to support customer interaction for Wastewater and Stormwater Services. Currently, operational calls are directed to HRM's 311 Call Centre. The target date to transfer call handling responsibly from 311 Call Centre is April 1, 2016.

The third phase will include a redirection of operational water calls from each of the regional depots to Halifax Water's Customer Care Centre. This phase will take place after the implementation of CityWorks, a Computerized Maintenance Management System (CMMS), which will interface with CRM and provide the ability to use an integrated work order process. The target for this phase is June 2016.

When all three phases have been implemented, Halifax Water will be able to provide a central access point to customers for Halifax Water services. The Customer Care Centre telephone number will be updated to 902-H2O-WATR in June/July 2016.

5.2 Advanced Meter Infrastructure

Halifax Water began looking at the feasibility of Advanced Meter Infrastructure (AMI) in 2012. AMI is a system whereby, in lieu of meter readers walking routes, or driving routes to read meters with radio devices , a fixed network of radio devices is established over the service area to read meters on a much more frequent basis (typically hourly). Based on an initial positive business case, Halifax Water went to market in October, 2015 to purchase an AMI technology system. The Halifax Water Board approved adoption of AMI in principle, subject to successful negotiations with the preferred vendor that results in a positive business case. Based on current schedules, and subject to Regulatory approvals, Halifax Water is proposing to launch a four year AMI project starting in June of 2016.

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

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

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

5.3 Operational Maintenance Management

Halifax Water is currently implementing a Computerized Maintenance Management System (CMMS) in conjunction with HRM. The project is a core component of the HRM Enterprise Asset Management (EAM) program and identified as the Operational Maintenance Management (OMM) system.

Presently, the maintenance information recorded is available at a specific operations facility and is primarily available in hard copy. There is limited shared access to work related activities. This increases the complexity in delivering sound metrics on Halifax Water maintenance activities. The current methods for maintenance management are often inefficient and labour intensive in the preparation and processing of individual work orders. These current practices can lead to increased reactive versus preventative maintenance and even reduce the amount of maintenance work undertaken.

As most methods are centered on the specific work area, it can be difficult to compile data on common activities across the operational areas. Although information is coded and submitted to the corporate financial system (SAP), extracting information on work activities is limited to infrastructure type (i.e. water system versus wastewater/ stormwater systems), geographic region (east, west, central), or by financial codes (general ledger, some by facility). Information is not easily tracked by asset class, task type, equipment, man hours attributed to the asset/facility.

To improve the overall efficiency, effectiveness and consistency in maintenance management and facilitate the integration of these activities with the existing corporate GIS and financial systems, Halifax Water is implementing the OMM project. This is the industry best practice for utilities in the management of vital infrastructure and facilities.

Once implemented, the OMM will enable a shift from a reactive to a proactive and ultimately an optimized work environment. It will automate the logistical functions performed by maintenance staff and management and generally includes the following functionality:

- work order generation, prioritization and tracking by asset class or equipment component
- tracking of scheduled (preventative) and unscheduled (reactive) maintenance activities
- storing of maintenance procedures and technical documentation
- historical tracking of all work orders including material and labour costs
- In addition, the project will provide the benefit of the elimination of paperwork and manual tracking activities, saving time and allowing staff to remain productive and improves decision making with maintenance planning, asset management and inventory control.

5.4 Wet Weather Management

The sources of high wet weather flow in a wastewater system are derived from infiltration and inflow (I&I), which is the entry of stormwater, including groundwater and flow from illegal connections, into the wastewater system. Halifax Water has developed a comprehensive Wet Weather Management Program (WWMP) with a mandate, "*To*

efficiently manage the volume of wet weather generated flows entering the sanitary wastewater system." The Program is the primary responsibility of Wastewater and Stormwater Services. Sewershed prioritization has been completed to ensure resources are assigned where they are needed the most. During the past year, three pilot areas in the vicinity of Cow Bay, Stuart Harris Drive and Crescent Avenue were monitored and pipes in two of the pilot areas were rehabilitated using trenchless methods. These pilot areas will be monitored in 2016 -17 and the data will be analyzed to help determine the overall cost benefit of these investments. A number of sites currently are monitored through the WWMP from a Rainfall Derived Inflow and Infiltration (RDII) perspective. Baseline data and detailed RDII information will aid decision making related to growth and compliance in these sewersheds. The following sewersheds are currently in the monitoring program.

- Lakeside-Timberlea WWTF;
- Wellington WWTF;
- Frame WWTF;
- North Preston WWTF;

To aid in the monitoring efforts, Halifax Water is in the process of finalizing service providers for flow monitoring and asset condition data with a focus on data quality. This information will further help in re-prioritizing the sewersheds and measure the results of rehabilitation and intervention efforts into the system. The private property inflow and infiltration contribution is a significant challenge to the WWMP. HW is developing a public outreach plan to raise awareness of the issue.

5.5 Energy Management

Through its Energy Management Program, Halifax Water is committed to creating and ensuring an ongoing focus on sustainability and energy efficiency throughout all operating areas. This program, through Halifax Water's Energy Management Policy, the Energy Management Steering Committee, and the annual Energy Management Action Plan (EMAP), defines the goals, objectives, accountabilities, and structure for activities related to energy efficiency, energy recovery, greenhouse gas (GHG) reductions, sustainability and environmentally responsible energy use.

For 2016/17 and beyond, initiatives have been identified in the following areas:

Infrastructure / Operational Improvements

Capital projects that will result in improved energy efficiency, energy recovery, GHG reductions and operational cost savings have been identified throughout Halifax Water's infrastructure. Projects being implemented or considered include:

Ventilation Air Heat Recovery	*UV Disinfection Upgrades*
Wastewater Effluent Heat Recovery	*Pumping System Upgrades*
Variable Frequency Drive Motor Controls	*Lighting Upgrades*
HVAC & Building Envelope Upgrades	*Pump/Meter Chamber Upgrades*

New construction capital projects (e.g. wastewater treatment facilities, pumping stations, etc.) are also reviewed at the conceptual and detailed design stages to ensure best-in-class energy efficiency and the lowest life cycle costs throughout the life of the asset.

Renewable Energy Generation

Renewable energy generation is also a priority, utilizing Halifax Water's extensive assets to recover thermal or electrical energy, where appropriate. Projects being implemented or considered include:

Mill Cove Biogas CHP System (COMFIT)	*Energy Recovery Turbines*
Biosolids Energy Recovery	*Wind Energy*
Cogswell District Energy System (DES)	

To date, two renewable energy projects have been completed: the Pockwock Community Wind Farm, located in Pockwock, NS, and the Orchard In-Line Energy Recovery Turbine, located in Bedford, NS. These projects are operating above expectations, and will continue to generate revenue for the utility for decades to come.

5.6 Stormwater Cost of Service

On October 30, 2015, Halifax Water made a submission to the NSUARB to amend the Stormwater section of the Cost of Service Manual. Although there was no proposed increase in stormwater rates, stormwater issues were added to the "Issues List" during the 2015 rate hearing to increase water and wastewater rates. HRWC eventually secured support from interveners as part of a Settlement Agreement, to address stormwater issues in a separate application in the fall of 2015.

HRWC has proposed several adjustments to the Cost of Service Manual designed to increase equity and ease administration.

A summary of the proposed Cost of Service/Rate Design related changes are provided below:

1. Halifax Water proposed to charge customers within the stormwater boundary to better reflect the use and benefit enjoyed by the various properties in the stormwater service area, and in recognition that most of the properties within the Boundary receive one or more of the following services from HRWC:

- Stormwater from the property enters into HRWC's stormwater system.
- Stormwater from upgrade lands is intercepted by and directed around the property by an HRWC stormwater system.
- The property is accessed directly by a driveway which crosses over an HRWC culvert

This broader approach will enhance equity of the charge, understandability and will provide administrative simplicity. It will also align with best practice. It will reduce the number of detailed investigations of specific drainage patterns associated with individual properties. These investigations have consumed significant resources over the past two years, and will increase the administrative costs of the stormwater service if not contained.

2. HRWC proposed to use the term "Site Related Flow Charge" to refer to the charge for the services and benefits the customer is receiving including any or all of stormwater flows being intercepted or diverted from a property, access to a property over an HRWC owned culvert, and management of stormwater from a property that enters any part of an HRWC stormwater system.

3. HRWC did not propose any changes how the municipality is billed. The municipality would continue to be billed for the impervious area in the street right of way consistent with the current direction from the NSUARB and current Cost of Service approach.

4. HRWC proposed that properties will be exempt from the Stormwater Charge if:
   - The Chargeable Impervious Area on the property is less than 50 square meters.
   - The properties were previously exempted and do not meet the stated stormwater service criteria.

5. In a future hearing to adjust stormwater rates, HRWC proposes to amend the "Adjustment of Bills" section 11 of the HRWC Regulations to permit adjustment of bills if upon review from the Notice of Objection process it is determined the billing determinant of chargeable impervious area is inaccurate or yields an inequitable result. The current "Adjustment of Bills" section of the regulations was written with Water and Wastewater service in mind.

6. HRWC proposed that impervious area associated with specific pits, quarries and refineries which were previously exempted because they had "stormwater management facilities" on the property, would now be included in billable impervious area. These properties will be treated like any other property, meaning that each will be considered to be exempt or not based upon the specific circumstances on or near the property.

7. HRWC proposed that owners of Non-Residential Properties shall pay a Site Related Flow Charge based on a rate per m^2 of Chargeable Impervious Area on the Property. If a part of a property is located outside HRWC's Stormwater Service Boundary, that

part of the property located outside the Boundary is exempt from the charge. As Non-Residential Customers are billed on the basis of actual impervious area and the properties in question are often large, this mechanism will enhance equity.

8. HRWC proposed that owners of Residential Properties shall pay a Site Related Flow Charge which shall be based on the average Chargeable Impervious Area for Residential Properties (subject to possible tiering of Residential Properties). The full charge is required to be paid, even if a part of the property is located outside the Commission's Stormwater Service Boundary. As residential properties are generally smaller, and are not charged on the basis of the actual impervious area, billing on the basis of an average or a tier based upon "Equivalent Residential Units" provides sufficient equity in a cost effective manner.

9. HRWC proposed to bill in increments of 10 m^2 rather than billing based on 1 m^2 of impervious area. This aligns with industry best practice, reduces the impact of any small measurement errors, and removes the illusion of precision associated with billing in a 1 m^2 increment. Impervious area would also be rounded to the nearest 10 m^2 increment.

10. HRWC proposed to implement a tiered rate structure for the "Site Related Flow Charge" for Residential properties. This would mean both Residential and Non-Residential properties with less impervious area would pay less than properties with more impervious area. The residential average would be eliminated. The tiered rate structure would be based upon an Equivalent Residential Unit, or "ERU". This concept is very similar to how "Equivalent Meters" are used in water and wastewater cost of service.

11. HRWC proposed to implement a credit system for non-residential (Industrial Commercial Institutional (ICI)) properties with stormwater Best Management Practices (BMPs) like retention ponds that help manage peak flows. The impacts of a credit system would be reflected in future operating budgets and revenue requirements. The majority of stormwater utilities have a credit system.

12. HRWC proposed to bill properties within the Stormwater Service Boundary (pursuant to item 1), and provide a credit program for "Non-Related Flow" for non-residential customers if the stormwater from the property does not reach an HRWC system, and they are only receiving the benefit of upstream protection (stormwater interception) or a culvert at the end of their driveway.

13. HRWC proposed to amend the (Notice of Objection) process to reflect the revised definition of service criteria. HRWC will be adding a self-assessment tool for customers through the website to enable them to determine if they are receiving service. This may reduce the volume of Notice of Objections as customers would have a better sense of whether there are strong grounds for a Notice of Objection.

14. HRWC proposed to include funds in future operating budgets and revenue requirements to conduct research in partnership with non-profit groups regarding

effectiveness of green infrastructure in cold climates as an ancillary tool for the stormwater system in Halifax. Green infrastructure is believed to provide a benefit and perform well in 1 in 5 year rain events.

The 2016/17 budget is based upon the current stormwater rate structure. There may be longer term implications to both revenues and expenses from the Decision from this hearing that will ultimately be addressed in a future application to adjust rates.

The hearing will be held the week of February 16, 2016 and a Decision is expected early in the 2016/17 fiscal year.

5.7 Environmental Management System Expansion

A steering committee has been established and staff resources (EMS Coordinator and administrative) have been designated to support the implementation and maintenance of the Environmental Management System (EMS) for all Halifax Water treatment facilities. Through 2016/17, the existing records for the water facilities will be updated to reflect changes to the ISO 14001 standards. An audit is planned for the Herring Cove WWTF, the first wastewater facility to be considered for certification.

The steering committee and EMS coordinator will address the outcomes of the audit to ensure a practical process and template for further certifications. In addition, the group will develop a plan for the next five years, prioritizing the WWTFs to complete the required document management and obtain the certifications at the remaining facilities.

This past year it was decided to use SharePoint for the management of the documents and records as opposed to Intelex. The EMS Coordinator will work with the SharePoint team to establish the record management system.

5.8 Asset Management

The Asset Management (AM) Program continues implementation of the Asset Management Roadmap and core asset management projects aimed at improving system information and knowledge. The outputs of these projects will inform and provide input to the proposed Annual Asset Management Plan (AMP). The AMP will lay out the progress status for closing information gaps, identify future asset data needs and methods, and outline recommendations that may drive programs in other departments and business units (e.g. capital program, maintenance activities, engineering information management, wet weather management, financial forecasting).

The West Region Wastewater Infrastructure Plan (WRWIP) is underway and will continue through 2016/17. The project provides the next level of planning detail following the IRP and intends to confirm the service delivery strategy, evaluate alignments and sites for

required infrastructure and carry out concept design for specific projects that fall in the first 10 years of the planning horizon. With this project, several foundational documents are being developed including the long term planning framework, the cost estimation framework, and the sewer systems evaluation process that will be available for future use in planning decisions and capital work.

The team continues to work on the modelling strategy including assessment of appropriate modelling tools. Prioritized by the needs of the wet weather management program and the WRWIP, staff will carry out a systematic model build out.

Key AM initiatives for 2016/17 include:

- Improve communications and availability of AM information
- Refine the AMPs
- Develop an enhanced prioritization methodology
- Condition assessment methods for pressurized pipes
- Implement corporate flow monitoring program
- Develop scope for Central and East Infrastructure Plans
- Finalize the hydraulic modelling strategy

Appendix A

Mission, Vision & Values

Halifax Water

Our Mission:

"To provide world class services
for our customers and our environment"

Our Vision:

- *We will provide our customers with high quality water, wastewater, and stormwater services.*
- *Through adoption of best practices, we will place the highest value on public health, customer service, fiscal responsibility, workplace safety and security, asset management, regulatory compliance, and stewardship of the environment.*
- *We will fully engage employees through teamwork, innovation, and professional development.*

Our Values:

Halifax Water promotes a culture that:

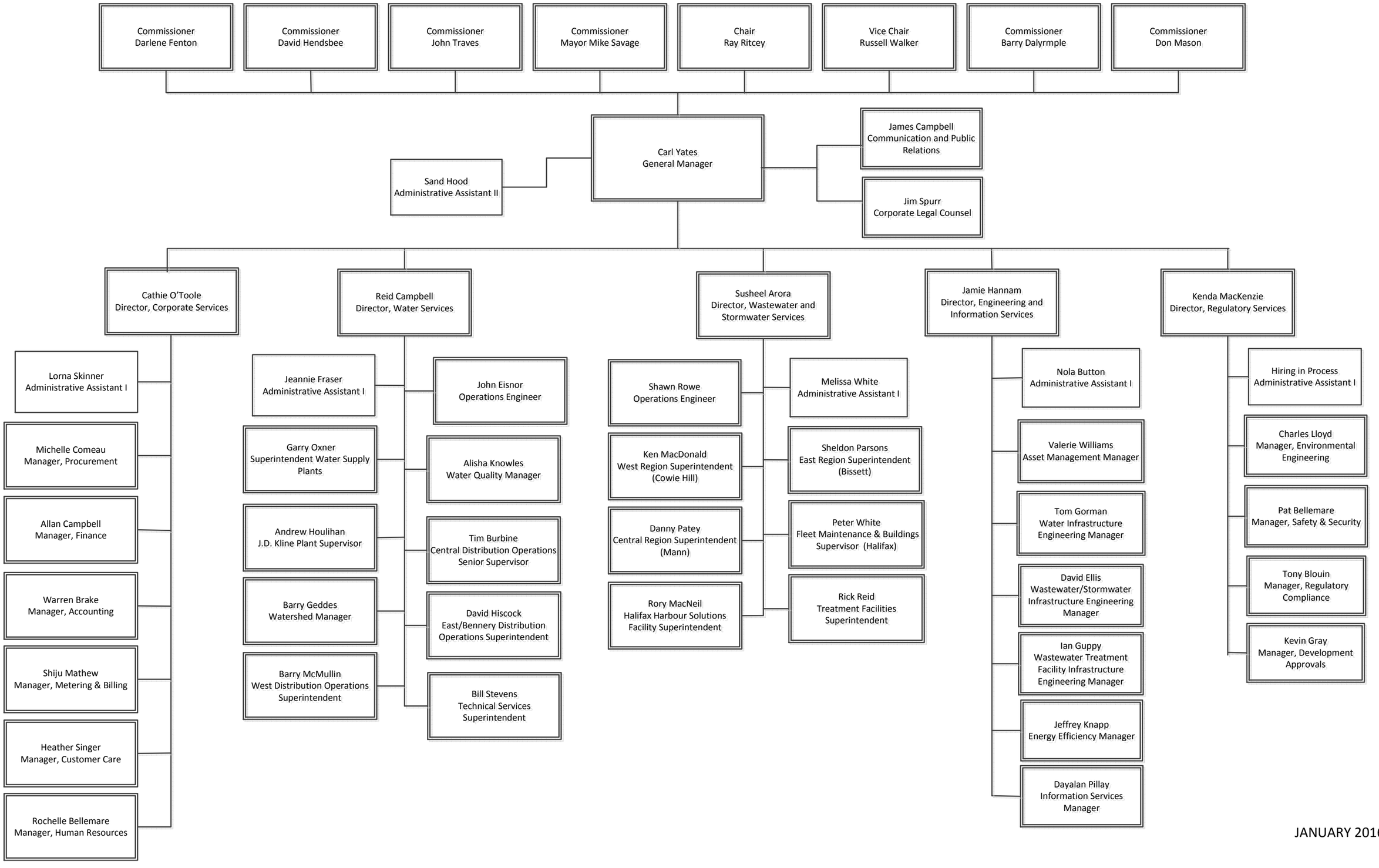
- *Engages employees, partners and stakeholders in achieving success;*
- *Encourages openness and transparency;*
- *Demonstrates individual and corporate accountability for results;*
- *Fosters innovation and progressive thinking;*
- *Respects diverse ideas, opinions and people;*
- *Is committed to service excellence; and*
- *Nurtures leadership at all levels.*

Appendix B

Organizational Structure

Halifax Water

HALIFAX WATER ORGANIZATIONAL STRUCTURE



JANUARY 2016

Appendix C

2016/17 Capital Budget

Halifax Water

Schedule 1

Capital Budget Program

2016-2017

January - 2016

OVERVIEW

Halifax Water is the water, wastewater and stormwater utility providing services for residents within the Halifax Regional Municipality.

On the water side, Halifax Water is the largest supplier of domestic potable water in Atlantic Canada. We supply over 122,000 cubic metres of water per day from the Pockwock and Lake Major Watersheds to a population of 355,000. Our water system infrastructure is comprised of three (3) large water supply plants – J.D. Kline WSP at Pockwock Lake (227 ML/day design capacity), Lake Major WSP at Lake Major (94 ML/day design capacity), and Bennery Lake WSP (8 ML/day design capacity); 1567 kms of water mains, 18 storage reservoirs, 156 pumping stations and control chambers, 8,199 fire hydrants, 14,773 main valves, 86,514 services and related appurtenances. In addition, we own and operate five small systems in the suburban/rural areas within HRM.

With respect to wastewater and stormwater infrastructure Halifax Water own and operate seven (7) large wastewater treatment facilities, including the three Halifax Harbour Solutions wastewater treatment facilities located at Halifax, Dartmouth, and Herring Cove. The wastewater and stormwater system is comprised of approximately 2,402 kms of sewer mains, 37,869 manholes, 170 wastewater pumping stations, 29,687 catch basins, 79,466 customer services and other related appurtenances. In addition, we own and operate eight (8) small wastewater treatment facilities systems in the suburban/rural areas within HRM.

Halifax Water's mission is *"To provide world class services for our customers and our environment"*. Halifax Water's 2012 *Integrated Resource Plan* identified a 30 year capital investment plan valued at $2.6 Billion. As part of our overall mission, the capital budget program focuses on providing required infrastructure for asset renewal, regulatory compliance and growth, along with capital facilities, systems and equipment. The capital program helps ensure that we continue to provide world class services in a cost effective and efficient manner with a focus on long term integrity.

BUDGET STRUCTURE

The Halifax Water Capital Budget includes an annual *One Year* and *Five Year c*apital plan. Capital projects are defined as newly acquired or constructed item with value greater than $5000 and a life expectancy beyond one year.

The Capital Budget document includes four general asset categories: Water, Wastewater, Stormwater and Corporate Projects.

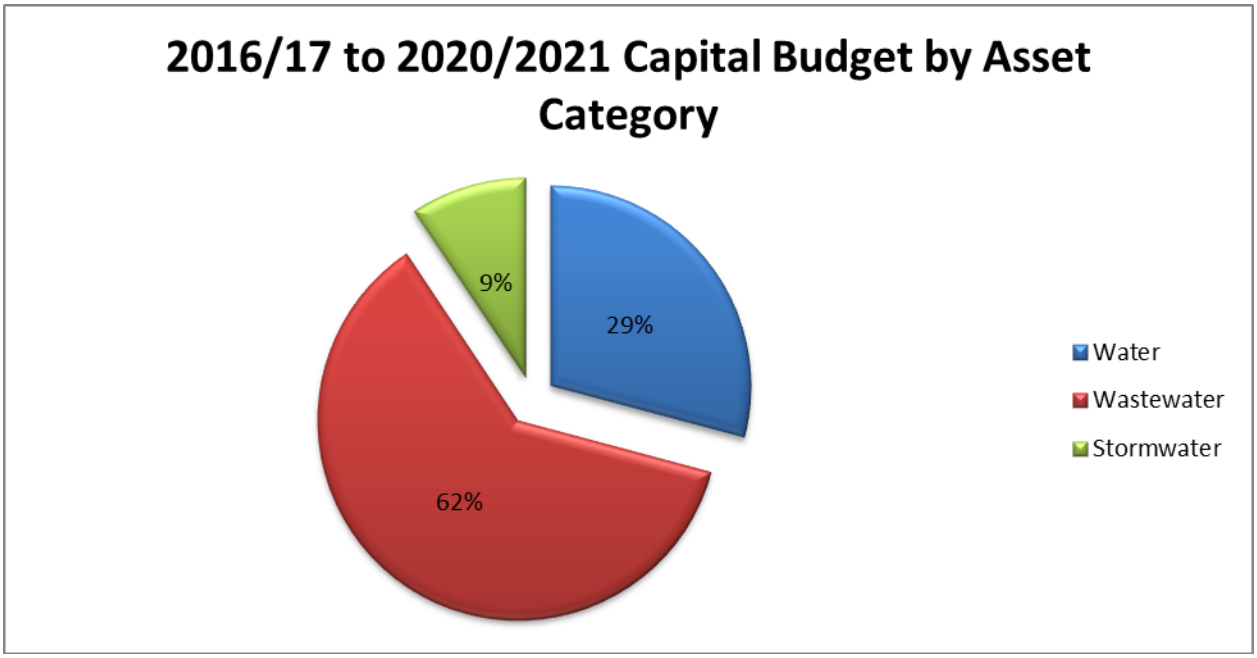
BUDGET HIGHLIGHTS

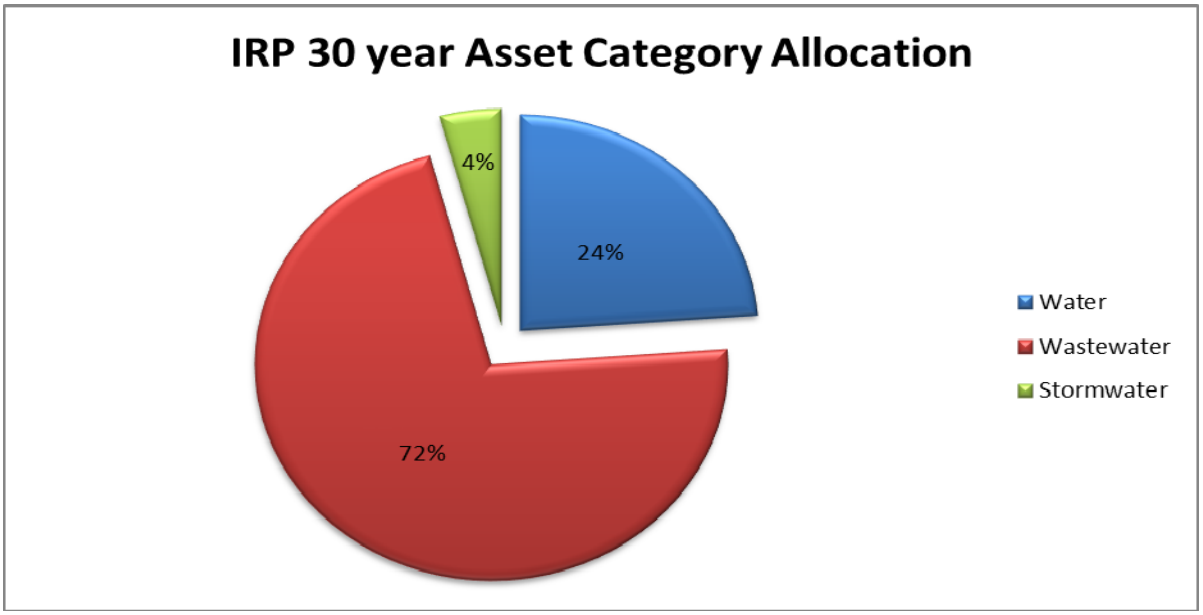
The detailed 1 Year and 5 year Capital Budget document is attached as Appendix A.

The summary totals for the four asset classes for the 1 Year and 5 Year capital budget are as follows:

Asset Class	Year 1 2016 / 2017	Years 1 - 5 2016/17 - 2020/21
Water	$16,453,000	$101,948,000
Wastewater	$35,838,000	$246,164,000
Stormwater	$3,951,000	$38,170,000
Corporate Projects	$10,535,000	$59,710,000
TOTAL	$66,777,000	$445,992,000

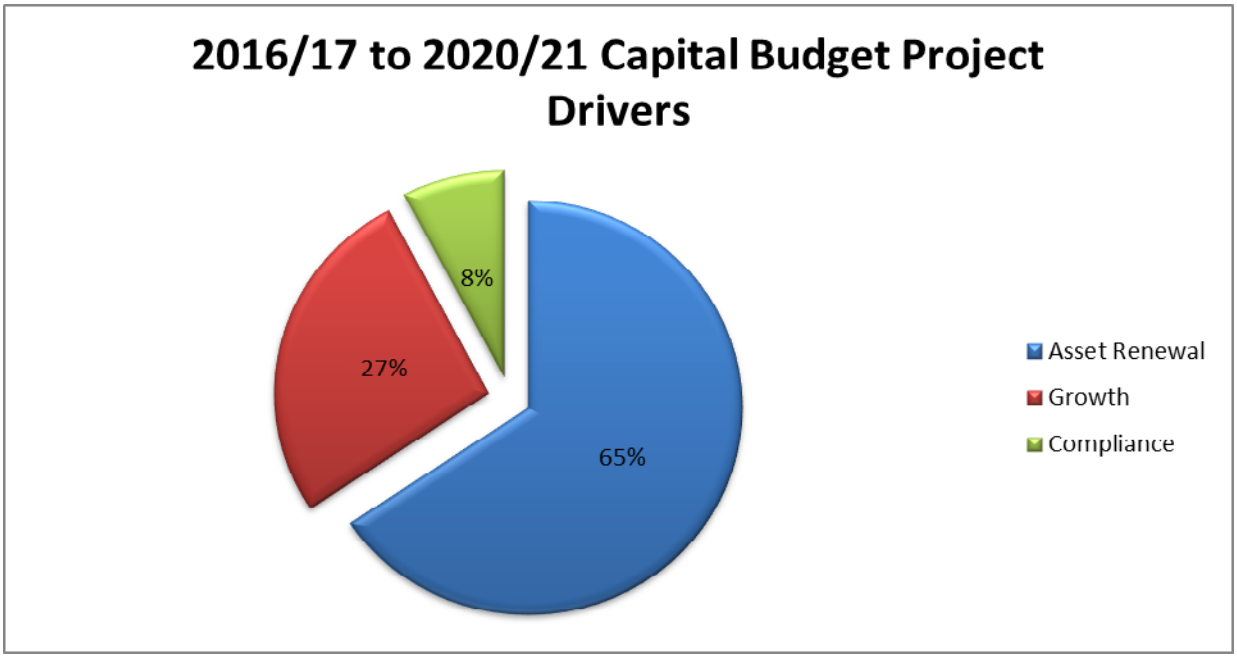
The capital program balances near term needs with the need to balance long term investments across all asset classes. For comparative purposes, the proposed 5 Year capital expenditure allocation is compared to the target expenditure allocation identified within the IRP.

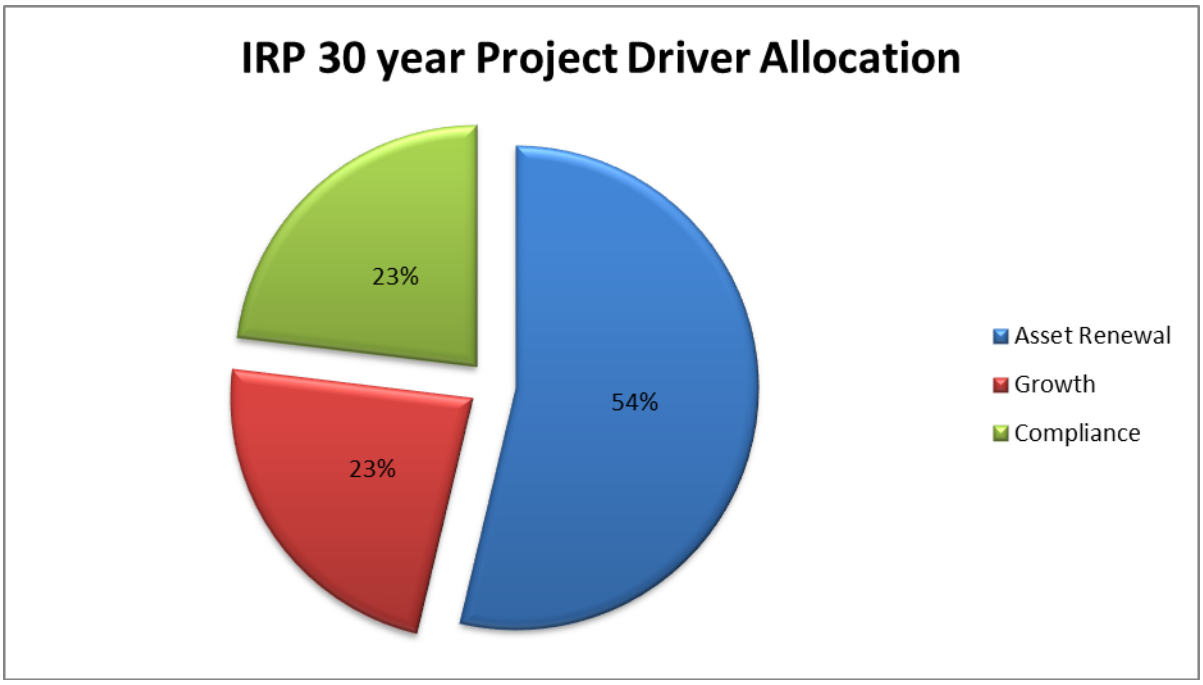




This comparison shows Halifax Water is generally on par with the IRP recommended allocation of funds with a near term expenditure of Sullivan's Pond Storm Sewer System Replacement project, causing the stormwater expenditure to be temporarily double that of the IRP.

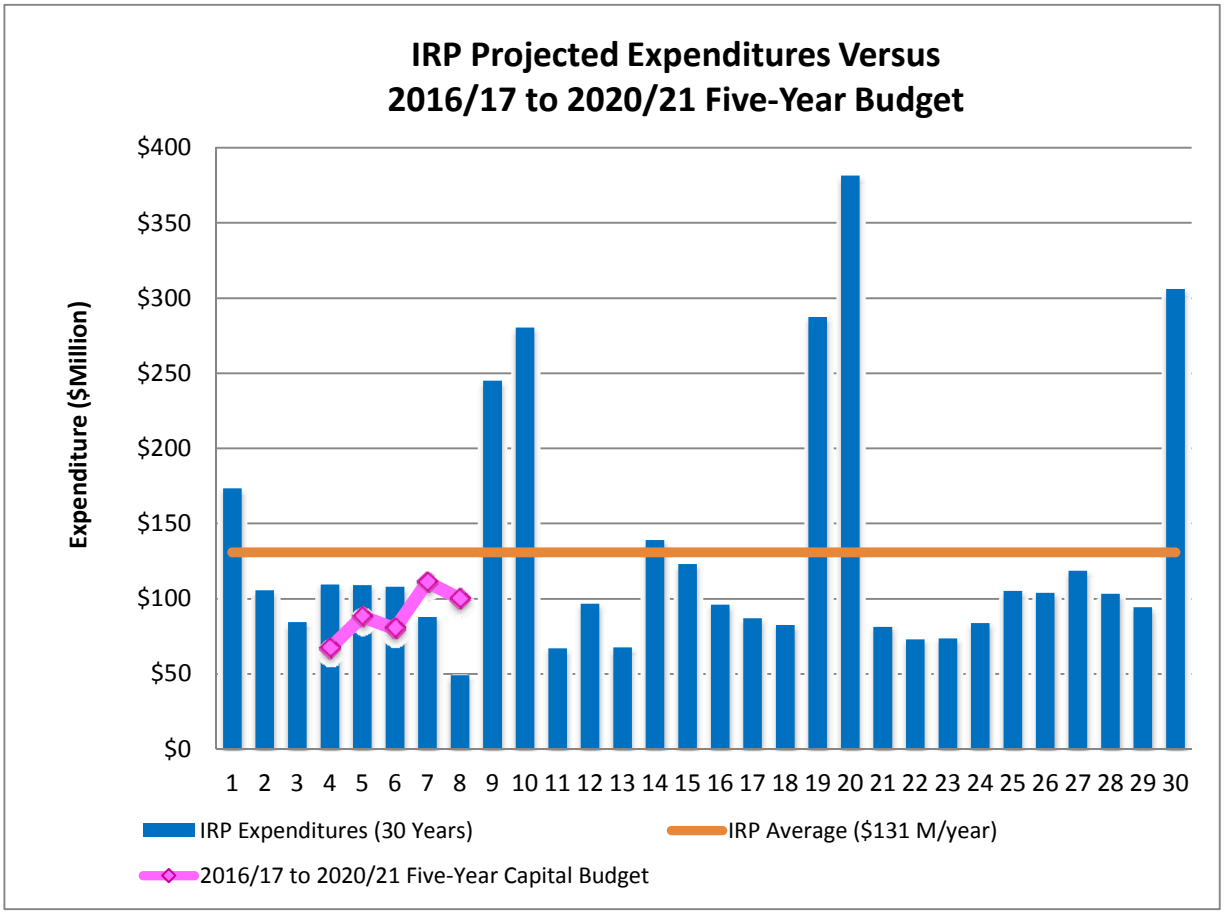
In addition to expenditure allocations across asset classes, the budget provides a balanced program for the various programs drivers of Asset Renewal, Regulatory Compliance and Growth. For comparative purposes, the proposed 5 Year capital allocation to program drivers is compared to the target allocation identified within the IRP.





The IRP compliance allocation is greater than the 5 Year compliance allocation due to large wastewater treatment facility expenditures that exist after the 10 year period.

The following chart shows the current proposed 5 Year capital expenditure plotted against the IRP based long term capital expenditure recommendation. These plots indicate a continued general increase trend in capital expenditures towards the target level.



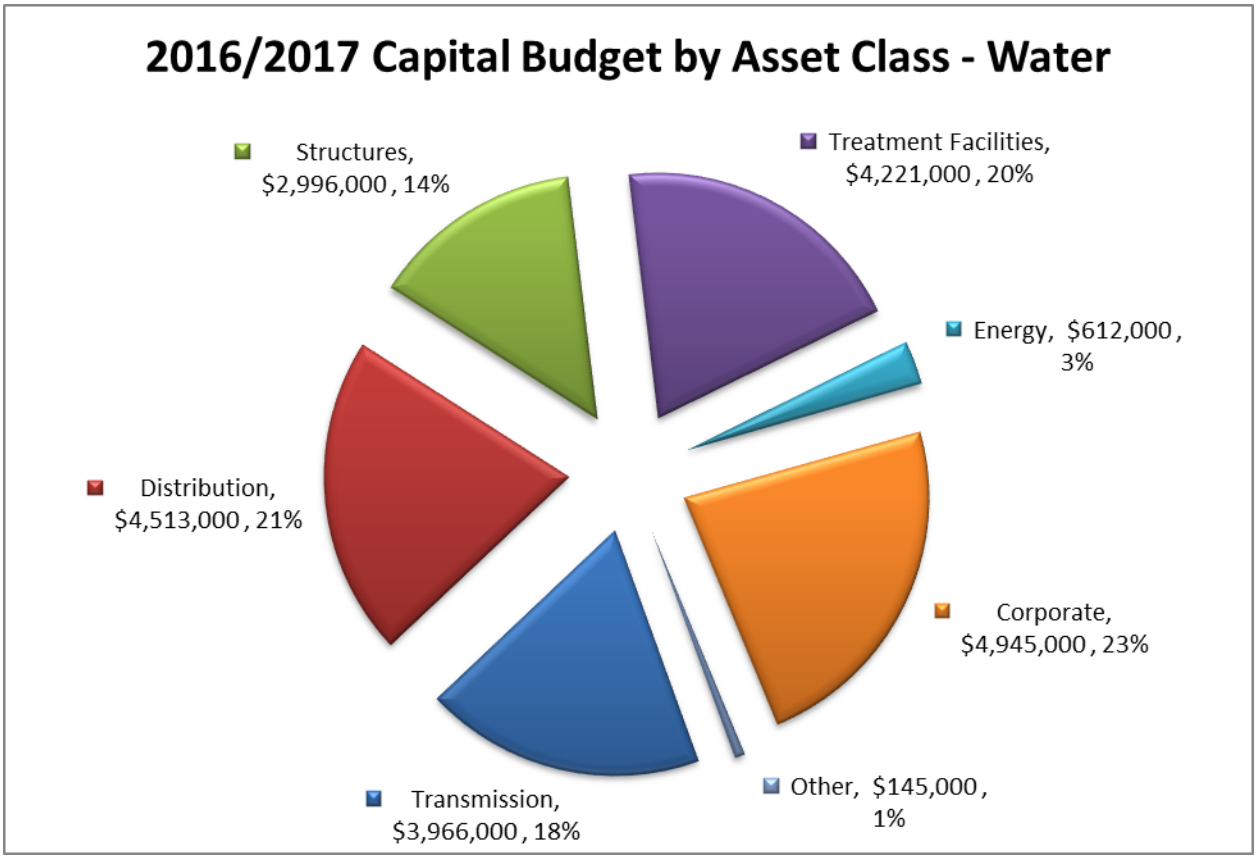
The following sections provide some highlighted details of the Capital Budget.

Water Asset Category

The Capital Budget funds the traditional capital requirements for water utility operation, along with a focus on several key capital initiatives. The 2016/17 budget is valued at $16,453,000.

Major water capital projects include:

- Macdonald Bridge Transmission Main Replacement: $3,295,000
- Distribution System Main Renewal Program in conjunction with HRM Streets program: $4,000,000
- Lake Major Water Supply Plant - New Diesel Generator: $1,900,000
- Asset Renewal and Process Upgrades – Water Supply Plants: $2,321,000

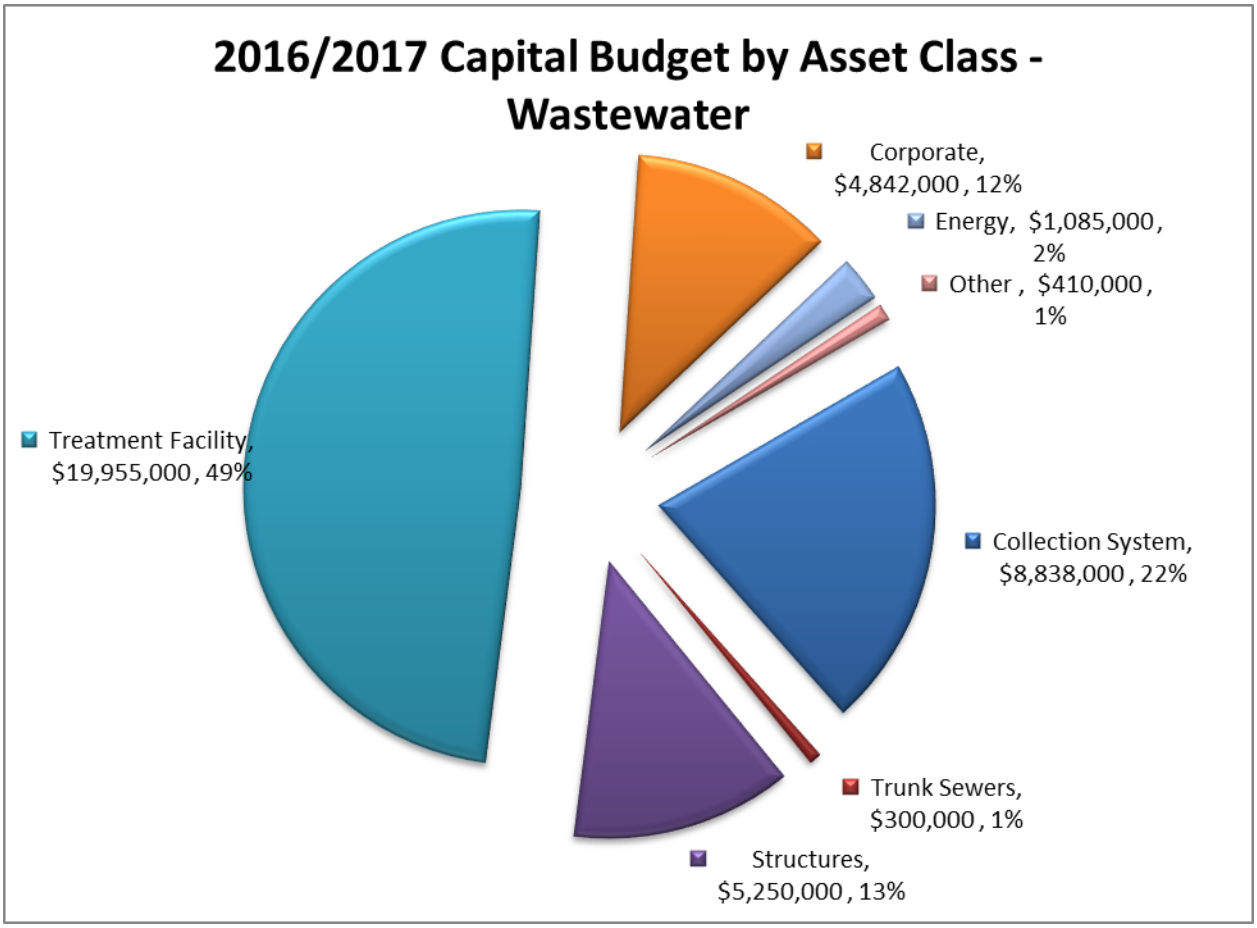


Wastewater Asset Category

This component funds the capital requirements for wastewater utility operation, along with a focus on several key capital initiatives. The 2016/17 budget is valued at $35,838,000.

Major wastewater capital projects include:

- Collection System Renewal Projects integrated with HRM Streets program: $1,750,000
- Lateral Replacements: $2,190,000
- Wastewater System – Trenchless Rehabilitation Program: $1,500,000
- Belmont WWTF Decommissioning - $250,000
- Aerotech WWTF Upgrade & Expansion - $13,930,000
- Corporate Flow Monitoring Program: $660,000
- Balsam Road Pumping Station Elimination: $770,000
- Bedford Pumping Station Rehabilitation: $2,850,000

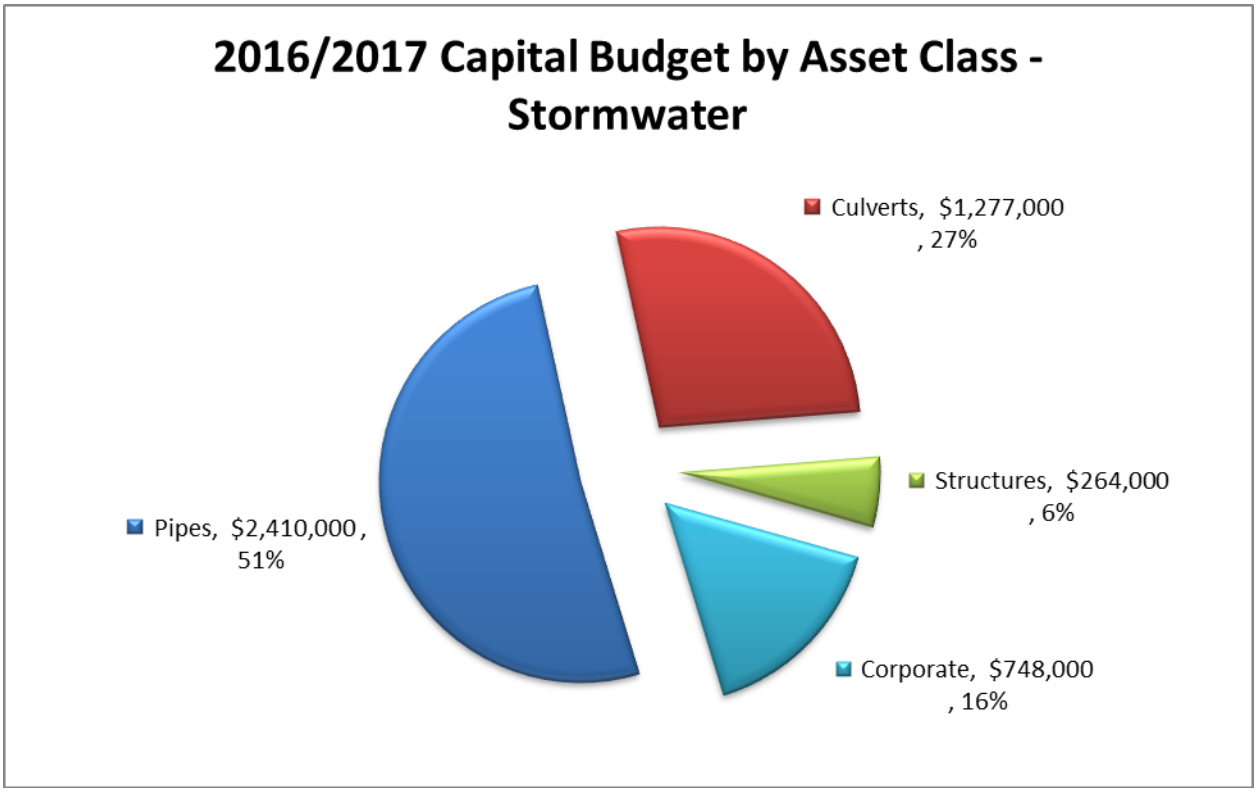


Stormwater Asset Category

This component funds the capital requirements for stormwater utility operation, along with a focus on several key capital initiatives. The 2016/17 budget is valued at $3,951,000.

Major Stormwater capital projects include:

- Sackville Crossroad Stormwater System Renewal: $1,200,000
- Stormwater System Renewal Projects Integrated with HRM Streets Program: $650,000
- Culvert Renewals: $1,277,000
- Sullivan's Pond Storm Sewer Replacement – Design: $300,000



Asset Category – Corporate Projects

Many capital initiatives benefit, and are shared financially, across all asset classes due to their broad benefit and application. The 2016/17 budget is valued at $10,535,000.

Major corporate capital project include:

- GIS Data Program: $1,000,000
- Computer Network and Hardware Upgrades: $380,000
- Computerized Maintenance Management System: $1,500,000
- Corporate Fleet: $1,655,000
- AMI/AMR Meter System Upgrade: $3,300,000
- Asset Management Program: $600,000

The Capital Budget document provides a listing of all Corporate Projects by total project cost and allocation to asset category.

Capital Funding

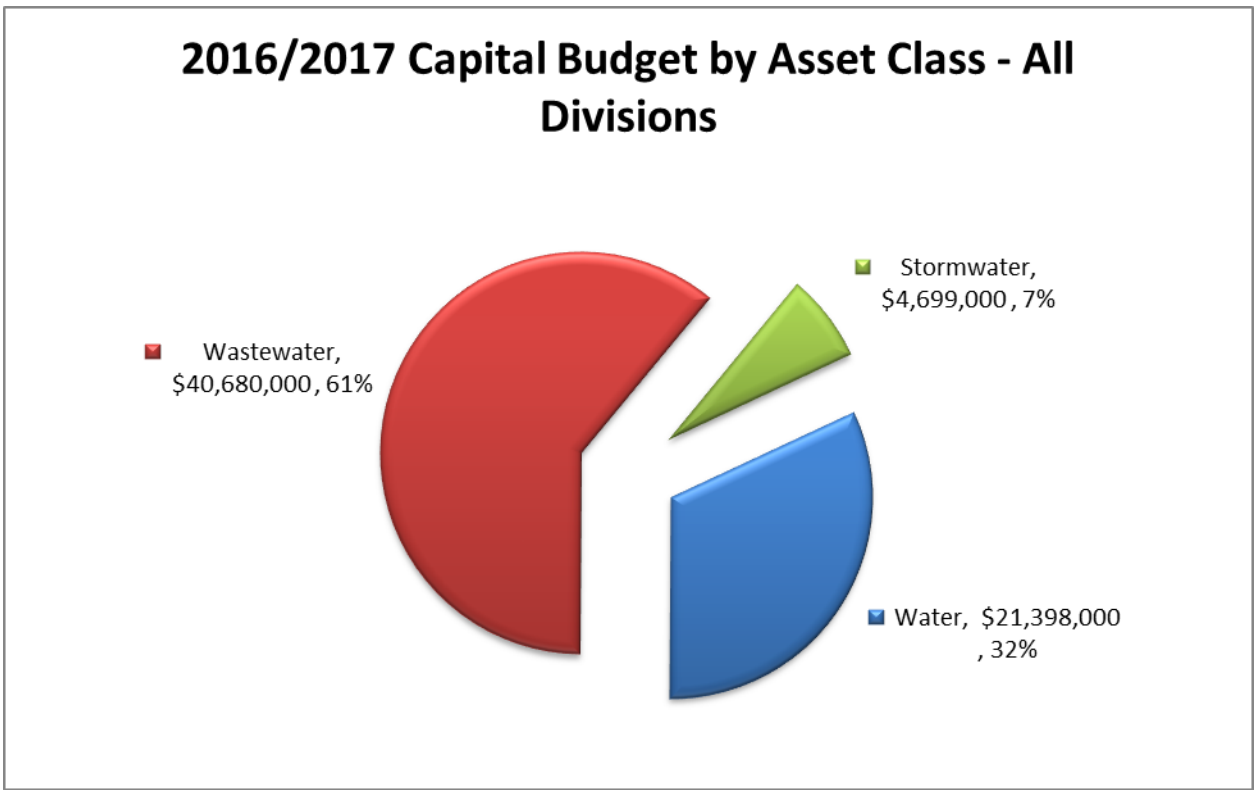
The Capital Budget is funded from a variety of sources including capital asset depreciation accounts, debt, reserves, capital cost contributions and external cost sharing.

Capital funding sources:

- Depreciation (rate based)
- Debt
- Development charge reserves
- External cost sharing

Debt Study as approved by Halifax Water Board, and accepted by the NSUARB, provides a funding strategy that is fair, equitable and cost effective.

Total 2016/17 Capital Budget Value: $66,777,000.



The funds for the overall Capital Budget will be generated from a combination of sources, as detailed below. The planned utilization of debt is consistent with the Debt Strategy. HRWC will manage risk around projected Regional Development Charges through reprioritization of growth projects or additional utilization of debt if required.

2016/17 Capital Budget Funding Sources

Water:	Depreciation	$9,631,878
	Debt	11,433,122
	RDC	0
	External Funding Build Canada	59,000
	Capital Cost Contributions	238,000
	Energy Rebates	36,000
	TOTAL	**21,398,000**
Wastewater:	Depreciation	14,035,907
	Debt	16,798,093
	RDC	300,000
	External Funding Build Canada	9,055,000
	Capital Cost Contributions	0
	Energy Rebates	16,000
	Unregulated Capital Funds	475,000
	TOTAL	**40,680,000**
Stormwater:	Depreciation	834,000
	Funds available from prior years' capital	150,000
	Debt	3,715,000
	TOTAL	**4,699,000**
Total Capital Funding:		**$66,777,000**

The depreciation amounts shown as a funding source are the depreciation included within revenue requirements upon which the rates are based. Other known sources of funding such as external funding, CCCs, RDCs, or Energy Rebates are reflected, then the new debt requirement is calculated. The new debt projected for 2016/17 is $1.75 million higher than the initial planned use of debt for 2016/17; however the additional debt servicing can be accomodated within the 2016/17 operating budget; and does not affect Halifax Water's compliance with debt service ratio targets.

The Stormwater funding reflects $150,000 available from underspending on the Ellenvale Run project that is currently being closed out. The funding will be carried forward to the 2016/17 stormwater capital budget.

The unregulated capital of $475,000 shown in Wastewater pertains to the Mill Cove Biogas CHP - Installation & Commissioning. The amount shown here is 50% of the total project cost and it is assumed this project will be allocated 50% to regulated and 50% to unregulated.

The cost of the $475,000 unregulated portion of this capital project may be debt financed, or alternately may be financed directly through the operating budget using unregulated revenues; and there is potentially an additional $350,000 in unregulated capital projects in 2016/17, as noted below that may proceed subject to necessary approvals and financing. The total projected unregulated capital budget for 2016/17 is $825,000.

Five Year Capital Budget - Unregulated Activity		
Project ID	Project Name	All $ in 000's
		Y1
		2016-2017
	Mill Cove Biogas CHP - Installation & Commissioning	$475
	In-line Turbine - Location TBD (Y1 - Design, Y2 - Install)	$50
	Cogswell DES - Conceptual Design + Cost Analysis/Consultation	$300
TOTALS - Wastewater		**$825**

HALIFAX WATER

Capital Budget 2016/17

Summary

Asset Category	Project Costs
Water - Land -- T O T A L	$0
Water - Transmission -- T O T A L	$3,966,000
Water - Distribution -- T O T A L	$4,513,000
Water - Structures -- T O T A L	$2,996,000
Water - Treatment Facilities -- T O T A L	$4,221,000
Water - Energy -- T O T A L	$612,000
Water - Security -- T O T A L	$50,000
Water - Equipment -- T O T A L	$95,000
Water - Corporate Projects - T O T A L	$4,945,000
TOTAL - Water	**$21,398,000**

Wastewater - Trunk Sewers -- T O T A L	$300,000
Wastewater - Collection System -- T O T A L	$8,838,000
Wastewater - Forcemains -- T O T A L	$100,000
Wastewater Structures -- T O T A L	$5,250,000
Wastewater - Treatment Facility -- T O T A L	$19,955,000
Wastewater - Energy -- T O T A L	$1,085,000
Wastewater - Security -- T O T A L	$200,000
Wastewater - Equipment -- T O T A L	$110,000
Wastewater - Corporate Projects -- T O T A L	$4,842,000
TOTAL - Wastewater	**$40,680,000**

HALIFAX WATER

Capital Budget 2016/17

Summary

Asset Category	Project Costs
Stormwater - Pipes -- T O T A L	**$2,410,000**
Stormwater - Culverts -- T O T A L	**$1,277,000**
Stormwater - Structures -- T O T A L	**$264,000**
Stormwater - Corporate Projects -- T O T A L	**$748,000**
TOTAL - Stormwater	**$4,699,000**
G R A N D T O T A L	**$66,777,000**

HALIFAX WATER

Capital Budget 2016/17

Water

Project Number	Project Name	Project Cost
	Water - Transmission	
3.042	Critical Valve Replacement Program	$300,000
3.175	Macdonald Bridge Transmission Main Replacement	$3,295,000
3.293	Peninsula Low North Transmission Main Replacement (Windsor to Robie)	$40,000
3.298	Hammonds Plains Road Transmission Main Extension - Voyageur Way	$140,000
3.006	Bedford Connector 750mm Replacement - Phase 3	$90,000
3.246	Water Transmission Main Condition Assessment Program	$75,000
3.045	Bedford West Capital Cost Contribution - Various Phases	$14,000
3.113	Northgate Capital Cost Contribution	$12,000
	Water - Transmission -- T O T A L	**$3,966,000**
	Water - Distribution	
3.022	Water Distribution - Main Renewal Program	$4,000,000
3.067	Valve Renewals	$125,000
3.068	Hydrant Renewals	$75,000
3.069	Service Line Renewals	$190,000
3.285	Versa Valve Removal	$20,000
3.294	Automated Flushing Program	$20,000
3.277	Temporary Water Line - Pipe Materials Purchase - East Region	$18,000
3.299	Water Distribution Pressure Monitoring Equipment	$10,000
3.296	Water Sampling Station Relocation Program	$29,000
3.295	Rechlorination Station Upgrades	$26,000
	Water - Distribution -- T O T A L	**$4,513,000**

HALIFAX WATER

Capital Budget 2016/17

Water

Project Number	Project Name	Project Cost
	Water - Structures	
3.247	Water Structures - Condition Assessment Program	$150,000
3.173	Lake Major Dam Replacement	$100,000
3.287	Bedford Reservoir Inflow Meter Replacement	$8,000
3.284	Zinck PRV Flow Meter Replacement	$8,000
3.282	Belmont PRV Replacement	$10,000
3.227	Relocate CT Calculation Equipment - Lucasville Meter Chamber	$31,000
3.116	Bedford South Reservoir Capital Cost Contribution	$250,000
3.286	Geizer 158 Reservoir Rehabilitation	$2,170,000
3.290	Lyle Street Control Chamber Access Improvement	$30,000
3.171	Confined Space Entry Retrofit - Bridgeview PRV Chamber	$79,000
3.283	Robie 2 Chamber Upgrades	$160,000
	Water - Structures -- T O T A L	**$2,996,000**
	Water - Treatment Facilities	
	J D Kline Water Supply Plant:	
3.319	- Replace the Lime Feed and Delivery System	$300,000
3.236	- Ampgard III to Vacuum Contactor Conversion	$40,000
3.281	- Replace Power Pole at Low Lift Station	$40,000
3.303	- New Laptop system to Backwash Filters	$12,000
3.322	- Backwash Flow Control Improvements	$185,000
	Lake Major Water Supply Plant:	
3.159	- Replace Contactors in the MCC	$34,000
3.206	- Chemical Feed Pumps	$85,000
3.237	- Recirculating Pumps for the Heating System	$9,000
3.144	- New Diesel Generator	$1,900,000
3.301	- Integrate Chlorine Alarms	$50,000
3.316	- Purchase Dewatering Equipment Components	$100,000

HALIFAX WATER

Capital Budget 2016/17

Water

Project Number	Project Name	Project Cost
3.317	- Waste Residuals Management - Study Component	$78,000
3.321	- Replace Fluoride System	$10,000
3.332	- Purchase Fluorescence Meter	$90,000
3.320	- New Raw Water Low Lift Pump	$50,000
3.207	- Isolating the Treatment Trains	$68,000
3.300	- Dedicated Service Water Pumping Station	$60,000
	Bennery Lake Water Supply Plant:	
3.272	- New Low Lift VFD Pump Replacement Program	$110,000
3.274	- Power Monitoring	$20,000
3.273	- Surge Protection	$17,000
3.167	- Plate Settlers	$440,000
3.211	Chlorine Analyzer Replacement Program	$23,000
3.276	Purchase Inline Zeta Potential Meters for Water Plants	$100,000
3.324	Water Plants: Purchase Particle Counters	$235,000
3.336	Geosmin Taxonomy Study	$165,000
	Water - Treatment Facilities -- T O T A L	**$4,221,000**
	Water - Energy	
3.107	Chamber HVAC Retro-Commissioning Program	$50,000
3.327	Lake Major WSP - HVAC Study	$100,000
3.109	JD Kline WSP - Industrial Process Water Pumps Upgrade	$160,000
3.31	JD Kline WSP - Raw Water Pump Upgrade Study	$230,000
3.311	JD Kline - Pump Station MCC Ventilation	$72,000
	Water - Energy -- T O T A L	**$612,000**
	Water - Security	
4.009	Security Upgrade Program	$50,000
	Water - Security -- T O T A L	**$50,000**

HALIFAX WATER

Capital Budget 2016/17

Water

Project Number	Project Name	Project Cost
	Water - Equipment	
3.104	Large Tapping Machine c/w electric operator and 4" to 12" cutters	$34,000
3.271	Small Hydro Vac for valve box maintenance	$25,000
3.335	Plastic Shell Cutters for Tapping Machine	$12,000
3.297	Portable Valve Exerciser	$10,000
	Confined Space Entry System for Bennery Lake Water Supply Plant	$14,000
	Water - Equipment -- T O T A L	**$95,000**
	Water - Corporate Projects - T O T A L	**$4,945,000**
	GRAND TOTAL - WATER	**$21,398,000**

HALIFAX WATER

Capital Budget 2016/17

Wastewater

Project Number	Project Name	Project Cost
	Wastewater - Trunk Sewers	
2.067	Northwest Arm Sewer Rehabilitation	$300,000
	Wastewater - Trunk Sewers - -- T O T A L	**$300,000**
	Wastewater - Collection System	
2.223	Wet Weather Management Program	$100,000
	Sewer Condition Assessment	$250,000
2.357	Manhole Renewals	$32,000
2.358	Lateral Replacements	$2,190,000
2.052	Integrated Wastewater Projects - Program	$1,750,000
2.043	Corporate Flow Monitoring Program	$660,000
2.168	Wastewater System - Trenchless Rehabilitation Program	$1,500,000
2.462	Wastewater Conveyance System Upgrade - Dingle PS to Roach's PS via William's Lake PS	$145,000
2.417	Inglis Street Sewer - Hydraulic Analysis	$250,000
2.460	Leiblin PS Elimination	$75,000
2.179	Balsam Road PS Elimination	$770,000
2.195	Gravity sewer from Little Albro Lake to Jamieson St PS	$100,000
2.518	Waterfront Drive Wastewater System Replacement	$500,000
2.074	Bedford West Collection System Capital Cost Contribution	$66,000
2.36	Central Region Wastewater Infrastructure Plan	$225,000
	East Region Wastewater Infrastructure Plan	$225,000
	Wastewater - Collection System -- T O T A L	**$8,838,000**
	Wastewater - Forcemains	
2.394	Wastewater Forcemain - Condition Assessment	$75,000
2.512	Hines Road Sewer - Odour Issue	$25,000
	Wastewater - Forcemains -- T O T A L	**$100,000**

HALIFAX WATER

Capital Budget 2016/17

Wastewater

Project Number	Project Name	Project Cost
	Wastewater - Structures	
2.42	Emergency Pumping Station Pump replacements	$270,000
2.442	Wastewater Pumping Station Component Replacement Program - East Region	$200,000
2.443	Wastewater Pumping Station Component Replacement Program - West Region	$225,000
2.444	Wastewater Pumping Station Component Replacement Program - Central Region	$65,000
2.465	Pumping Station Standard	$135,000
2.091	Bedford PS Rehabilitation (at Mill Cove WWTF)	$2,850,000
2.038	Roach's Pond Pumping Station - Trash Rack	$75,000
2.005	Autoport Pleasant Street PS Replacement	$200,000
2.361	Eastern Passage Pumping Station - Efficiency/Pump Control	$650,000
2.039	New PS & FM plus Belmont WWTF decommissioning	$250,000
2.38	Gantry Road Manhole Rehab	$30,000
2.447	RWWFP Projects MC2, MC3 - Wastewater Storage	$300,000
	Wastewater Structures -- T O T A L	**$5,250,000**
	Wastewater - Treatment Facility	
2.056	Plant Optimization Audit Program	$175,000
	Emergency Wastewater Treatment Facility equipment replacements	$200,000
	Halifax Wastewater Treatment Facility:	
2.517	- Installation of TSS Analyzer	$82,000
2.519	- Pump replacements sludge mixing system	$140,000
	Dartmouth Wastewater Treatment Facility:	
2.500	- Influent Duty Pump Installation	$160,000
2.343	- Fine Screen Upgrade	$1,000,000
	Mill Cove Wastewater Treatment Facility:	
2.124	- UV Upgrade	$2,080,000
2.495	- Compressor Replacement	$20,000
2.496	- Entrance Gate Replacement	$20,000
2.497	- Wet Scrubber Media Replacement	$20,000
2.486	- Digester Roof Coating	$135,000

HALIFAX WATER

Capital Budget 2016/17

Wastewater

Project Number	Project Name	Project Cost
	Eastern Passage Wastewater Treatment Facility:	
2.469	- Storage Shed	$41,000
2.47	- Secondary Launder Covers	$49,000
2.471	- Automation of RAS Gates	$97,000
2.472	- Process Optimization	$39,000
2.498	- Process Water System Filter Upgrade	$26,000
2.484	- Fall Protection Grates - Sludge Tank and Inlet Chamber	$6,000
2.024	Aerotech WWTF Upgrade - Design/Construction	$13,930,000
2.33	Timberlea WWTF - Upgrades (RBC, Flow Equalization, Screen)	$500,000
	Middle Musquodoboit WWTF Bank Stabilization	$25,000
	Biosolids Processing Facility:	
2.513	- Silo Painting	$90,000
2.514	- Front End Loader Replacement	$370,000
2.520	- Plant Ventilation System Upgrades	$700,000
	- Biofilter Media Replacement	$50,000
	Wastewater - Treatment Facility -- T O T A L	**$19,955,000**

HALIFAX WATER

Capital Budget 2016/17

Wastewater

Project Number	Project Name	Project Cost
	Wastewater - Energy	
2.485	BLT WWTF - Lighting Upgrade	$35,000
2.491	Pump Station HVAC Retro-Commissioning Program	$100,000
2.173	Mill Cove WWTF - Bio-Gas CHP - Installation	$950,000
	Wastewater - Energy -- T O T A L	**$1,085,000**
	Wastewater - Security	
4.008	Security Upgrade Program	$200,000
	Wastewater - Security -- T O T A L	**$200,000**
	Wastewater - Equipment	
2.161	SIR Program Flow Meters and Related Equipment	$40,000
2.451	Miscellaneous Equipment Replacement	$70,000
	Wastewater - Equipment -- T O T A L	**$110,000**
	Wastewater - Corporate Projects -- T O T A L	**$4,842,000**
	GRAND TOTAL - WASTEWATER	**$40,680,000**

HALIFAX WATER

Capital Budget 2016/17

Stormwater

Project Number	Project Name	Project Cost
	Stormwater - Pipes	
1.038	Integrated Stormwater Projects - Program	$650,000
1.102	Manhole Renewals	$29,000
1.103	Catchbasin Renewals	$29,000
1.135	Lateral Replacements	$87,000
1.139	Bank of Montreal Stormwater Lateral - 5151 George Street	$90,000
1.019	Drainage Remediation Program Surveys/Studies	$25,000
1.051	Sackville Cross Road Stormwater System Renewal (formerly Seawood Avenue)	$1,200,000
1.043	Sullivan's Pond Storm Sewer System Replacement - Phase 1	$300,000
	Stormwater - Pipes -- T O T A L	**$2,410,000**
	Stormwater - Culverts/Ditches	
1.104	Driveway Culvert Replacements	$450,000
1.127	Wilson Drive & Highway 2 - Culvert Replacement	$236,000
1.059	Herring Cove Road Culvert Replacement	$85,000
1.069	Inverness Avenue Culvert Replacement	$156,000
1.111	Bedford Highway @ Shaunslieve Drive Culvert upgrade	$250,000
1.126	2016/17 Culvert Program - Design Services	$100,000
	Stormwater - Culverts/Ditches -- T O T A L	**$1,277,000**
	Stormwater - Structures	
1.06	Clement Street Berm - SW Control Structure	$264,000
	Stormwater - Structures -- T O T A L	**$264,000**
	Stormwater - Corporate Projects -- T O T A L	**$748,000**
	GRAND TOTAL - STORMWATER	**$4,699,000**

HALIFAX WATER

Capital Budget 2016/17

Corporate Projects

Project Number	Project Name	Project Cost
4.011	Desktop Computer Replacement Program	$180,000
4.012	Network Infrastructure Upgrades	$200,000
4.013	Document Management Program	$200,000
4.070	Computerized Maintenance Management System Phase 2	$1,500,000
4.024	Sharepoint Implementation	$200,000
4.043	AMI/AMR Meter System Upgrades (split 50W/50WW)	$3,300,000
4.014	IT Disaster Recovery Site	$300,000
4.066	Customer Service Portal	$220,000
4.067	Website Build	$200,000
4.063	CRM Interfaces	$200,000
4.04	GIS Data Program	$1,000,000
4.038	GIS Hardware/Software Program	$150,000
4.039	GIS Application Support Program	$250,000
4.059	Water Database Model	$100,000
4.068	450 Cowie Hill Road - External Lighting Upgrade	$50,000
4.02	Asset Management Program Development	$150,000
4.052	Long Term Planning Coordination Strategy (split 50W/50WW)	$200,000
4.049	Expand Prioritization Methodology	$125,000
4.055	Purchase Modelling Software	$50,000
4.054	Assess AM Software and Tools	$50,000
	Condition and Performance Assessment Program and Prioritization	$25,000
4.004	SCADA Control System Enhancements (split 50W/50WW)	$200,000
3.21	Survey Equipment - GPS Total Station	$30,000
4.006	Fleet Upgrade Program Stormwater	$230,000
4.006	Fleet Upgrade Program Wastewater	$920,000
4.007	Fleet Upgrade Program Water	$505,000
	GRAND TOTAL - Corporate Projects	**$10,535,000**

HALIFAX WATER

Capital Budget 2016/17

Corporate Projects

Project Number	Project Name	Project Cost
	ALLOCATION BREAKDOWN:	
	Water - Corporate Projects - T O T A L	$4,945,000
	Wastewater - Corporate Projects -- T O T A L	$4,842,000
	Stormwater - Corporate Projects -- T O T A L	$748,000
	GRAND TOTAL - Corporate Projects	**$10,535,000**

Note: All corporate projects are allocated as follows:

50% Water

40% Wastewater

10% Stormwater

(unless otherwise noted)

HALIFAX WATER

Capital Budget 2016/17

Summary of Routine Capital Expenditures included within Capital Budget

Project Number	Project Name	Project Cost
	Water	
3.067	Valve Renewals	$125,000
3.068	Hydrant Renewals	$75,000
3.069	Service Line Renewals	$190,000
3.104	Large Tapping Machine c/w electric operator and 4" to 12" cutters	$34,000
3.271	Small Hydro Vac for valve box maintenance	$25,000
3.335	Plastic Shell Cutters for Tapping Machine	$12,000
3.297	Portable Valve Exerciser	$10,000
	Confined Space Entry System for Bennery Lake Water Supply Plant	$14,000
3.277	Temporary Water Line - Pipe materials Purchase - East Region	$18,000
3.299	Water Distribution Pressure Monitoring Equipment	$10,000
	Wastewater	
2.357	Manhole Renewals	$32,000
2.358	Lateral Replacements	$2,190,000
2.161	SIR Program Flow Meters and Related Equipment	$40,000
2.451	Miscellaneous Equipment Replacement	$70,000
	Stormwater	
1.102	Manhole Renewals	$29,000
1.103	Catchbasin Renewals	$29,000
1.135	Lateral Replacements	$87,000
	Corporate	
4.011	Desktop Computer Replacement Program	$180,000
4.012	Network Infrastructure Upgrades	$200,000
3.210	Survey Equipment - GPS Total Station	$30,000
4.007	Fleet Upgrade Program Water	$505,000
4.006	Fleet Upgrade Program Wastewater	$920,000
4.006	Fleet Upgrade Program Stormwater	$230,000
	GRAND TOTAL - Routine Capital Projects	**$5,055,000**

Appendix D

2016/17 Operations Budget

Halifax Water

HALIFAX WATER
CONSOLIDATED SUMMARY OF ESTIMATED REVENUES & EXPENDITURES
PROPOSED OPERATING BUDGET
APRIL 1, 2016 to MARCH 31, 2017
(in thousands)

DESCRIPTION	ACTUAL APR 1/14 MAR 31/15	APPROVED BUDGET * APR 1/15 MAR 31/16	**PROPOSED BUDGET APR 1/16 MAR 31/17**
OPERATING REVENUES	$130,320	$129,905	**$135,675**
OPERATING EXPENDITURES	$94,381	$103,614	**$102,425**
OPERATING PROFIT	$35,939	$26,291	**$33,250**
FINANCIAL REVENUES (NON-OPERATING)			
INVESTMENT INCOME	$836	$660	**$810**
PNS FUNDING HHSP DEBT	$2,000	$2,000	**$2,000**
MISCELLANEOUS	$219	$417	**$481**
	$3,055	$3,077	**$3,291**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$8,958	$8,440	**$8,872**
LONG TERM DEBT PRINCIPAL	$18,638	$20,626	**$22,652**
AMORTIZATION DEBT DISCOUNT	$163	$172	**$199**
DIVIDEND/GRANT IN LIEU OF TAXES	$4,340	$4,579	**$4,663**
	$32,099	$33,818	**$36,386**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	$6,896	($4,449)	**$154**
Adjustments:			
Pension - Section 3461	*$562*	*$3,086*	*$3,086*
Net Profit (Loss) on a Cash Basis	*$7,457*	*($1,363)*	*$3,241*

** Revised 2015/16 Operating Budget as approved by the Board of Directors, July 30, 2015.*

HALIFAX WATER
ESTIMATED REVENUES AND EXPENDITURES - WATER OPERATIONS
PROPOSED OPERATING BUDGET
APRIL 1, 2016 to MARCH 31, 2017
(in thousands)

DESCRIPTION	ACTUAL APR 1/14 MAR 31/15	APPROVED BUDGET * APR 1/15 MAR 31/16	**PROPOSED BUDGET APR 1/16 MAR 31/17**
REVENUES			
METERED SALES	$39,385	$42,743	**$46,465**
FIRE PROTECTION	$9,146	$8,032	**$7,074**
PRIVATE FIRE PROTECTION SERVICES	$558	$1,069	**$840**
BULK WATER STATIONS	$286	$309	**$326**
CUSTOMER LATE PAY./COLLECTION FEES	$189	$343	**$203**
MISCELLANEOUS	$133	$150	**$153**
	$49,698	$52,646	**$55,061**
EXPENDITURES			
WATER SUPPLY & TREATMENT	$7,112	$8,134	**$7,983**
TRANSMISSION & DISTRIBUTION	$8,317	$9,155	**$8,710**
SMALL SYSTEMS (incl. Contract Systems)	$978	$792	**$883**
TECHNICAL SERVICES (SCADA)	$821	$806	**$846**
ENGINEERING & INFORMATION SERVICES	$3,490	$3,809	**$3,848**
ENVIRONMENTAL SERVICES	$656	$628	**$515**
CUSTOMER SERVICE	$2,101	$2,227	**$2,251**
ADMINISTRATION & PENSION	$5,163	$6,089	**$5,416**
DEPRECIATION	$7,386	$8,573	**$8,561**
	$36,025	$40,213	**$39,013**
OPERATING PROFIT	$13,672	$12,433	**$16,048**
FINANCIAL REVENUES (NON-OPERATING)			
INVESTMENT INCOME	$417	$330	**$365**
MISCELLANEOUS	$151	$344	**$408**
	$567	$674	**$773**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$2,553	$2,108	**$2,486**
LONG TERM DEBT PRINCIPAL	$7,020	$7,969	**$8,576**
AMORTIZATION DEBT DISCOUNT	$83	$97	**$100**
DIVIDEND/GRANT IN LIEU OF TAXES	$4,340	$4,579	**$4,663**
	$13,996	$14,753	**$15,825**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	$244	($1,646)	**$996**

** Revised 2015/16 Operating Budget as approved by the Board of Directors, July 30, 2015.*

HALIFAX WATER
ESTIMATED REVENUES AND EXPENDITURES - WASTEWATER OPERATIONS
PROPOSED OPERATING BUDGET
APRIL 1, 2016 to MARCH 31, 2017
(in thousands)

DESCRIPTION	ACTUAL APR 1/14 MAR 31/15	APPROVED BUDGET * APR 1/15 MAR 31/16	**PROPOSED BUDGET APR 1/16 MAR 31/17**
REVENUES			
METERED SALES	$67,770	$65,505	**$68,052**
WASTEWATER OVERSTRENGTH AGREEMENTS	$140	$174	**$0**
LEACHATE	$345	$379	**$389**
CONTRACT REVENUE	$86	$86	**$86**
SEPTAGE TIPPING FEES	$608	$800	**$650**
DEWATERING FACILITY/ SLUDGE LAGOON	$210	$210	**$210**
AIRLINE EFFLUENT	$69	$78	**$86**
CUSTOMER LATE PAY./COLLECTION FEES	$236	$210	**$257**
MISCELLANEOUS	$105	$121	**$133**
	$69,568	$67,562	**$69,862**
EXPENDITURES			
WASTEWATER COLLECTION	$10,175	$9,717	**$9,446**
WASTEWATER TREATMENT PLANTS	$18,446	$18,640	**$19,425**
SMALL SYSTEMS	$982	$1,136	**$1,251**
DEWATERING FACILITY/ SLUDGE MGM'T	$491	$767	**$556**
BIOSOLIDS TREATMENT	$64	$101	**$101**
LEACHATE CONTRACT	$313	$328	**$341**
TECHNICAL SERVICES (SCADA)	$1,036	$1,191	**$1,215**
ENGINEERING & INFORMATION SERVICES	$2,723	$3,493	**$3,629**
ENVIRONMENTAL SERVICES	$1,353	$1,343	**$1,254**
CUSTOMER SERVICE	$1,677	$1,844	**$1,864**
ADMINISTRATION & PENSION	$4,074	$5,042	**$4,485**
DEPRECIATION	$10,237	$11,674	**$11,983**
	$51,571	$55,277	**$55,551**
OPERATING PROFIT	$17,997	$12,285	**$14,311**
FINANCIAL REVENUES (NON-OPERATING)			
INVESTMENT INCOME	$419	$330	**$365**
PNS FUNDING HHSP DEBT	$2,000	$2,000	**$2,000**
MISCELLANEOUS	$69	$73	**$72**
	$2,488	$2,403	**$2,437**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$5,930	$5,798	**$5,817**
LONG TERM DEBT PRINCIPAL	$10,770	$11,747	**$12,978**
AMORTIZATION DEBT DISCOUNT	$76	$66	**$89**
	$16,776	$17,612	**$18,884**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	$3,709	($2,924)	**($2,136)**

** Revised 2015/16 Operating Budget as approved by the Board of Directors, July 30, 2015.*

HALIFAX WATER
ESTIMATED REVENUES AND EXPENDITURES - STORMWATER OPERATIONS
PROPOSED OPERATING BUDGET
APRIL 1, 2016 to MARCH 31, 2017
(in thousands)

DESCRIPTION	ACTUAL APR 1/14 MAR 31/15	APPROVED BUDGET * APR 1/15 MAR 31/16	**PROPOSED BUDGET APR 1/16 MAR 31/17**
REVENUES			
STORMWATER SITE GENERATED SERVICE	$7,070	$5,669	**$6,708**
STORMWATER RIGHT-OF-WAY SERVICE	$3,881	$3,927	**$3,881**
CUSTOMER LATE PAY./COLLECTION FEES	$12	$10	**$70**
MISCELLANEOUS	$91	$91	**$93**
	$11,055	$9,697	**$10,753**
EXPENDITURES			
STORMWATER COLLECTION	$3,955	$5,017	**$4,761**
TECHNICAL SERVICES (SCADA)	$37	$28	**$28**
ENGINEERING & INFORMATION SERVICES	$557	$568	**$590**
ENVIRONMENTAL SERVICES	$647	$825	**$835**
CUSTOMER SERVICE	$343	$300	**$303**
ADMINISTRATION & PENSION	$834	$820	**$729**
DEPRECIATION	$412	$565	**$614**
	$6,785	$8,123	**$7,862**
OPERATING PROFIT	$4,270	$1,573	**$2,891**
FINANCIAL REVENUES (NON-OPERATING)			
INVESTMENT INCOME	$0	$0	**$81**
	$0	$0	**$81**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$475	$534	**$569**
LONG TERM DEBT PRINCIPAL	$848	$910	**$1,098**
AMORTIZATION DEBT DISCOUNT	$4	$9	**$11**
	$1,327	$1,453	**$1,678**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	$2,942	$120	**$1,294**

** Revised 2015/16 Operating Budget as approved by the Board of Directors, July 30, 2015.*

HALIFAX WATER
ESTIMATED REVENUES & EXPENDITURES, SEGREGATED BY REGULATED AND UNREGULATED ACTIVITIES
PROPOSED OPERATING BUDGET
APRIL 1, 2016 to MARCH 31, 2017
(in thousands)

DESCRIPTION	ACTUAL APR 1/14 MAR 31/15	APPROVED BUDGET * APR 1/15 MAR 31/16	**PROPOSED BUDGET APR 1/16 MAR 31/17**
REGULATED ACTIVITIES			
REVENUES			
METERED SALES	$107,155	$108,248	**$114,516**
FIRE PROTECTION	$9,146	$8,032	**$7,074**
PRIVATE FIRE PROTECTION	$558	$1,069	**$840**
STORMWATER SITE GENERATED SERVICE	$7,070	$5,669	**$6,708**
STORMWATER RIGHT-OF-WAY SERVICE	$3,881	$3,927	**$3,881**
OTHER OPERATING REVENUE	$1,172	$1,386	**$1,213**
	$128,982	$128,331	**$134,234**
EXPENDITURES			
WATER SUPPLY & TREATMENT	$7,112	$8,128	**$7,976**
TRANSMISSION & DISTRIBUTION	$8,317	$9,155	**$8,710**
WASTEWATER & STORMWATER COLLECTION	$14,100	$14,721	**$14,195**
WASTEWATER TREATMENT PLANTS	$18,446	$18,640	**$19,425**
SMALL SYSTEMS	$1,948	$1,913	**$2,116**
SCADA, CONTROL & PUMPING	$1,894	$2,024	**$2,087**
ENGINEERING & INFORMATION SERVICES	$6,770	$7,861	**$8,058**
ENVIRONMENTAL SERVICES	$2,656	$2,796	**$2,605**
CUSTOMER SERVICE	$4,093	$4,337	**$4,382**
ADMINISTRATION & PENSION	$10,042	$11,870	**$10,549**
DEPRECIATION	$18,030	$20,812	**$21,158**
	$93,409	$102,256	**$101,263**
OPERATING PROFIT	$35,573	$26,075	**$32,971**
FINANCIAL REVENUES (NON-OPERATING)			
INVESTMENT INCOME	$836	$660	**$810**
MISCELLANEOUS	$2,023	$2,074	**$2,066**
	$2,859	$2,734	**$2,876**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$8,958	$8,440	**$8,858**
LONG TERM DEBT PRINCIPAL	$18,638	$20,626	**$22,632**
AMORTIZATION DEBT DISCOUNT	$163	$172	**$199**
DIVIDEND/GRANT IN LIEU OF TAXES	$4,340	$4,579	**$4,663**
	$32,099	$33,818	**$36,353**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES - REGULATED ACTIVITIES	$6,333	($5,008)	**($506)**
UNREGULATED ACTIVITIES			
REVENUES			
AEROTECH SEPTAGE TIPPING FEES	$608	$800	**$650**
LEACHATE	$345	$379	**$389**
CONTRACT REVENUE	$86	$86	**$86**
DEWATERING FACILITY/ SLUDGE LAGOON	$210	$210	**$210**
AIRLINE EFFLUENT	$69	$78	**$86**
ENERGY PROJECTS	$9	$115	**$184**
MISCELLANEOUS	$21	$21	**$22**
	$1,347	$1,689	**$1,625**
EXPENDITURES			
- DIRECT			
WATER SUPPLY & TREATMENT	$12	$15	**$18**
WASTEWATER TREATMENT	$898	$1,196	**$998**
ENERGY PROJECTS	$63	$0	**$0**
SPONSORSHIPS & DONATIONS	$57	$56	**$56**
DEPRECIATION	$6	$0	**$0**
	$1,036	$1,267	**$1,072**
- INDIRECT (ADMINISTRATION)	$0	$91	**$91**
	$1,036	$1,358	**$1,163**
OPERATING PROFIT	$312	$331	**$463**
FINANCIAL REVENUES (NON-OPERATING)			
MISCELLANEOUS	$252	$228	**$231**
FINANCIAL EXPENDITURES (NON-OPERATING)			
LONG TERM DEBT INTEREST	$0	$0	**$14**
LONG TERM DEBT PRINCIPAL	$0	$0	**$19**
AMORTIZATION DEBT DISCOUNT	$0	$0	**$0**
	$0	$0	**$33**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES - UNREGULATED ACTIVITIES	$563	$559	**$660**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES - COMBINED ACTIVITIES	$6,896	($4,449)	**$154**

** Revised 2015/16 Operating Budget as approved by the Board of Directors, July 30, 2015.*