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Item No. 13.3.1
Halifax Regional Council
February 15, 2022

TO: Mayor Savage and Members of Halifax Regional Council

SUBMITTED BY: **Original Signed**
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager, Halifax Water

DATE: February 8, 2022

SUBJECT: Halifax Water 2022/23 Business Plan

ORIGIN

Halifax Water Board Meeting of January 27, 2022

LEGISLATIVE AUTHORITY

Annual operational requirement in accordance with Halifax Regional Water Commission Act, clause 20A(2)(b), and Halifax Regional Municipality Administrative Order 2018-001-ADM.

RECOMMENDATION

It is recommended that Regional Council endorse the 2022/23 Annual Business Plan of Halifax Water as described in the attached document as Appendix A.

BACKGROUND

Halifax Water develops both long-term and short-term business plans for the approval of the Commission Board. The 2022/23 Annual Business Plan reflects the strategic direction in the Five-Year Business Plan (2020/21 – 2024/25). The Annual Business Plan was approved by the Halifax Water Board on January 27, 2022. The business plans are consistent with the updated Integrated Resource Plan (IRP) approved by the Board in November 2019. Clause 20A(2)(b) of the *Halifax Regional Water Commission Act* requires that Halifax Water submit its Annual Business Plan for approval by Regional Council.

DISCUSSION

Halifax Water is an integrated water, wastewater, and stormwater utility in its 77th year of operation, serving 106,119 customers and an estimated population of 383,000.

Halifax Water's business plan for 2022/23 is developed with recognition that although some of the challenges of the preceding fiscal year will continue to impact Halifax Water's customers, employees and business partners, we can continue to focus on continuous improvement of our service delivery and service offerings. Last year Halifax Water launched an enhanced Lead Service Line Replacement program, and

Customer Connect, a customer portal. Customer Connect enables customers to monitor their consumption, receive water saving tips, and receive bills electronically. Advanced metering infrastructure now allows Halifax Water to proactively notify customers about potential leaks and high consumption. These enhanced programs and services will continue to be refined in 2022/23. Throughout the response to COVID-19, Halifax Water has been able to deliver water, wastewater and stormwater services while maintaining the quality of the service and high levels of employee and customer satisfaction.

In 2022/23, Halifax Water will be focusing on increasing our sustainability and capacity to deliver services. We will be increasing our financial sustainability by taking steps to improve the financial position to ensure we can continue to provide the service our customers expect, meet the challenges caused by growth and aging infrastructure, and the costs of environmental compliance and protection.

This annual business plan recognizes the need for further capital investment as contemplated in the updated IRP. Halifax Water's proposed capital budget is $106.5 million with 70% of the projects arising due to the need to renew existing assets. This year the capital budget has been scaled back slightly to better reflect our capacity to deliver projects while we transition to an organization designed to deliver the IRP level of spending. The five-year capital budget reflects total spending of $896.8 M with $374.4 M for water, $454.7 M for wastewater, and $67.7 M for stormwater.

Halifax Water is working to gradually increase the level of capital expenditures to the level recommended by the IRP to address the strategic drivers of asset renewal, growth, and regulatory compliance. Of the three strategic drivers included in the IRP, asset renewal will present the greatest challenge recognizing the backlog of investments in relation to the replacement of aging infrastructure.

The capital budget provides investment in asset renewal, compliance, and growth-related projects to support utility operations; but the predominant driver in each service (water, wastewater, stormwater) is asset renewal.

Some significant water asset renewal projects planned for 22/23 include rehabilitation of the Akerley Reservoir, completion of the Cowie Hill Reservoir replacement, a Transmission Main Renewal (Churchill Corridor), and the Water Supply Enhancement Program. Halifax Water has a major multi-year water supply enhancement program planned for the J.D. Kline (Pockwock Lake) and Lake Major water supply plants (WSPs), due to a combination of factors such as changes in source water due to lake recovery and age of some treatment plant components.

Halifax Water's wastewater treatment facilities are compliant with current environmental regulations, but the utility faces significant future expenditures both to maintain current and meet future compliance requirements. Halifax Water is working to develop a more detailed plan to upgrade the Halifax Harbour Solutions plants (HHSP) to meet the objectives stipulated in the federal Wastewater System Effluent Regulations by 2040, and in 2022/23 will be completing an important Wastewater Treatment Facility Planning Study that will guide the future upgrade of the Halifax Harbour Solutions Plants. Another important wastewater project in 2022/23 is the upgrade of the Aerotech Biosolids Processing Facility with consideration of anaerobic digestion for treating residual biosolids, to generate renewable gas and continuing to process the residual biosolids into Class A fertilizer for beneficial reuse. This could result in a reduction in conventional fossil fuel use and therefore GHG emissions further mitigating climate change.

Halifax Water's approach to water and wastewater treatment plant upgrades is to develop strategies that are based on thorough research and investigation of new technologies. Halifax Water is in the third year of a wastewater research partnership in partnership with Dalhousie University and Natural Sciences and Engineering Research Council of Canada (NSERC) with research focused on plant optimization and contaminants of emerging concern. Through the wastewater research program, Halifax Water is also contributing to wastewater research regarding COVID-19. From the water perspective, research continues on the effects of lake recovery, lead, geosmin and corrosion control; and water operations are investigating artificial intelligence for leak detection, pressure management and optimizing distribution operations to prevent breaks.

We will be prioritizing environmental sustainability by implementing a corporate Environmental Management System (EMS), continuing to progress development of a Climate Action Plan, and ensuring major initiatives such as the Water Supply Enhancement Program, Water Safety Plan, Wastewater Treatment Facility Planning Study, and biosolids facility project are forward looking and considering the environmental requirements of tomorrow. Halifax Water is taking positive actions towards climate adaptation and mitigation and the 2019 IRP considers climate vulnerabilities to reduce risk to infrastructure and service delivery.

Climate change mitigation is a core driver for implementation of the Cogswell District Energy System as part of the Cogswell redevelopment. This exciting initiative will lead to significant reductions in GHG emissions compared to the historical case for new development.

We will be increasing the sustainability and capacity of our workforce by adding several new positions across the utility in areas that support capital project delivery, climate change, safety, and stormwater service delivery. In addition to increasing our staffing complement, we will continue to focus on the physical and psychological health of Halifax Water employees as we continue to adjust to changing risks and public health requirements related to COVID-19.

During 2022/23, we will initiate construction of a new operations depot in Burnside, which will allow for the consolidation of four existing operations depots, three of which are at the end of their life cycle. Building a new consolidated facility in Burnside has many benefits for employees, customers, and the utility. The new facility will enable us to provide a similar level of service for our customers within different regions and will position us well for future areas of growth such as the Dartmouth to Bedford corridor along the Magazine Hill, and the Dartmouth to Fall River corridor. The new facility will also reduce life cycle costs compared to owning and operating the four (4) existing facilities. The new facility is designed for a diverse workforce, will meet today's standards for accessibility and environmental sustainability, and will create enhanced opportunities for interdepartmental collaboration.

There are very few activities the utility conducts that do not involve cooperation and collaboration from multiple business units and workgroups. This year the business plan is presented in a manner that reflects a less siloed approach. Instead of focusing on departmental and individual goals, we are focusing on corporate goals and the need to work together to move the utility forward in four areas:

- People
- Health, Safety and Environment
- Financial and Regulatory Accountability
- Operational Excellence

Technology continues to transform our business and change how employees and customers interact. We are continuing to enhance Halifax Water's customer portal (Customer Connect) and will implement a new corporate Enterprise Resource Planning (ERP) system in 2022/23 which will continue to drive significant organizational change. The value of technology is being proven throughout the response to COVID-19 as Halifax Water's services have continued with no impact on the quality of the service being provided.

The number of Halifax Water customers that have signed up for Customer Connect has exceeded our projections to date, and we will continue to focus on promotion of Customer Connect. Detailed information on water consumption allows customers to monitor their accounts for possible high consumption or leaks and will allow Halifax Water to refine its approach to water loss control to ensure it remains a world leader.

The 2022/23 fiscal year will see continued evolution of existing programs and services such as the lead service line (LSL) replacement program. By integrating with HRM street renewal projects and by replacing the portion of LSLs on private property at the utility's expense, it will enable Halifax Water to meet its goal for LSL replacement by 2039. Also, a program to promote compliance of new service connections with Halifax Water Regulations is under development. This program will promote disclosure and resolution of issues regarding connections to the system at the point of sale

Customer satisfaction and employee engagement are both fundamental to success of the utility. Halifax Water is committed to continually innovate, improve, and remain cost-effective with the understanding of the importance of keeping the cost of services affordable.

The 2022/23 Business Plan provides an overview of the services provided by Halifax Water, strategic objectives for next year, and an overview of the operating and capital budgets to maintain delivery of these services. The Business Plan projects an operating deficit of $10.9 M, based on the rates approved by the NSUARB. This represents a slight improvement over the $11.7 M deficit budgeted last year.

The water rates were effective April 1, 2016, stormwater rates were effective July 1, 2017, base charges for wastewater were effective April 1, 2016, while approved wastewater consumption rates by the Nova Scotia Utility and Review Board (NSUARB) were effective April 1, 2021.

The main cost drivers of Halifax Water's operating budget are salaries and wages, energy, chemicals, depreciation, and debt servicing. Operating expenses are proposed to increase by $3.4 million or 2.7% compared to the budget for last year. Full details of the operating budget are provided in Appendix C.

All three services – water, wastewater and stormwater are currently operating at a deficit and Halifax Water will be making an application in 2022/23 to the NSUARB to adjust rates for services to reflect the current costs of providing service. As noted above, most Halifax Water's rates are based on operating costs from several years ago and do not reflect current costs or recognize general inflation.

With respect to the Multi-year Council Priority Outcomes established by the municipality, Halifax Water's Five-Year Business Plan and on-going activities are aligned with the municipality. A full copy of Halifax Water's Five-Year Business Plan 2020/21 – 2024/25 is available at: *https://halifaxwater.ca/publications-reports*.

The following section highlights the activities where Halifax Water is aligned with the municipality's corporate priorities for the betterment of the communities and residents we collectively serve.

ALIGNMENT WITH HALIFAX REGIONAL MUNICIPALITY STRATEGIC PRIORITIES:

ECONOMIC DEVELOPMENT

Halifax Water employs over 500 employees and is a major purchaser of goods and services doing business with over 1,000 vendors. Our projects help create and support thousands of local jobs. The current five year capital budget reflects $896.8 M in capital spending. This number may be adjusted in future based on consideration of capacity to deliver the projects, and to smooth the impact on the organization and on rates. The capital budget for 2022/23 is $106.5 M and the total operating cost to provide water, wastewater and stormwater service will be $128.8 M.

ATTRACT & RETAIN TALENT

Halifax Water has a strong commitment to experiential learning for students studying at the Nova Scotia Community College (NSCC) and Dalhousie University. The utility facilitates professional work terms for students and offers various scholarships to assist students with their learning journey. In addition to attracting a strong student contingent from NSCC to work at Halifax Water, the utility has an Industrial Research Chair through the NSERC and Dalhousie University. Many students participating in the Research Chair program have secured employment with local consultants, regulatory agencies and Halifax Water.

Several Halifax Water staff participate in Techsploration with NSCC to promote careers for women in technology; Halifax Water also attends local job fairs.

PROMOTE & MAXIMIZE GROWTH

Facilitation of Growth: Halifax Water facilitates opportunities to expand and optimize its systems and to create more capacity for additional customers to connect. This in turn creates economic efficiencies in the system. The utility has a mature Capital Cost Contribution policy approved by the NSUARB in 1998, and in 2014 received approval from the NSUARB for a Regional Development Charge (RDC), which is recalibrated in five-year intervals. A process to update the RDC based on the 2019 Infrastructure Master Plan was conducted in 2020/21 and new RDC rates were implemented in 2021/22 along with some changes that are beneficial to the development of affordable housing. These instruments are foundational to facilitate growth, consistent with the *Public Utilities Act*, in a fair and equitable manner and in support of HALIFAX's Regional Plan.

RURAL ECONOMIC DEVELOPMENT

Service Extensions: Many rural communities of the municipality are not connected to centralized water and wastewater services. Several have water quality and/or quantity problems and septic systems that need to be pumped and the effluent disposed of in an environmentally safe manner. Halifax Water considers requests for service extensions to private communities in accordance with the NSUARB approved Procedure for Acceptance of Private Community Water, Wastewater and Stormwater Systems (Attachment 1 to the Halifax Water Regulations).

Halifax Water provides septage treatment at various locations for septage haulers that provide service to such communities. Halifax Water also provides technical support to the municipality in planning studies and service extensions to rectify water and wastewater service deficiencies, consistent with the Regional Plan. Halifax Water is currently supporting the municipality in the planning for the final phases of water and sewer servicing to the community of Herring Cove.

Small Systems: In addition to operating large systems in the urban and suburban areas of the municipality, Halifax Water operates 12 satellite systems throughout rural areas. These include service to customers in North Preston, Middle Musquodoboit, Silver Sands, Bomont subdivision, Collins Park, Frame subdivision, Wellington, Lockview Road, Springfield Lake, Uplands Park and Five Island Lake.

FOCUS ON THE REGIONAL CENTRE

Centre Plan & Regional Plan Growth: Halifax Water appreciates that providing adequate and reliable regional infrastructure, as efficiently as possible, is a key component in supporting the municipality's growth initiatives. Halifax Water provided project management services to the municipality for the Local Wastewater Servicing Capacity Analysis, which reviewed the detailed wastewater servicing requirements for the six opportunity areas within the City Centre and are currently coordinating with planning staff on the implementation and phasing of the required infrastructure. As well, for the broader Regional Plan, Halifax Water has completed Regional Infrastructure Plans for water and wastewater, as part of the 2019 IRP, utilizing growth projections from municipal planning staff. The Infrastructure Master Plan incorporates findings from work completed to support the driver of growth. Halifax Water staff are participating in the Regional Plan update.

Halifax Water staff also provides support on the servicing issues pertaining to current and future master planned communities.

Cogswell Redevelopment Project Including District Energy System: Halifax Water is working closely with municipal staff on the Cogswell Redevelopment Project on several fronts. Halifax Water has significant existing infrastructure within the redevelopment area and are working with the municipal project team to optimize infrastructure relocations to minimize costs, improve construction efficiency and ensure long-term service delivery. In addition, Halifax Water is pursuing an opportunity for a District Energy System (DES) within the Cogswell area.

A study was completed in 2016 to determine the feasibility and preliminary business case for an Ambient Temperature District Energy System (ATDES) within the Cogswell Redevelopment Area of downtown Halifax. The feasibility of the ATDES is predicated on the assumption that connection to the ATDES will be mandatory within the redevelopment area. To that end, the municipality amended its Charter through the Legislature to facilitate this authorization, and in 2020 the municipality approved an ATDES by-law to mandate mandatory connection within the Cogswell Redevelopment Area.

In June 2021, Halifax Water secured project funding for the ATDES through the Green Infrastructure Stream of the Investing in Canada infrastructure plan. As part of this funding arrangement, the Federal government is investing $5.5 M, the Government of Nova Scotia is contributing $4.6 M, while Halifax Water is contributing $3.7 M.

Solar Projects to Reduce Greenhouse Gas Emissions

In July, 2021, Halifax Water secured approximately $1.23 M dollars in federal/provincial funding to install 425 kW of solar photovoltaic (PV) panels through the Federal Government's Community Solar Project initiative. The Government of Canada will contribute $670 thousand, Nova Scotia will contribute $558 thousand and the remaining cost of approximately $446 thousand will be funded by Halifax Water.

By using solar at our facilities, we can reduce our net greenhouse gas emissions by approximately 7000 tonnes over its lifetime. This has environmental benefits for Nova Scotia and helps decrease operating expenses for Halifax Water's rate base.

SUPPLY OF INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL LANDS

Halifax Water ensures that water, wastewater and stormwater service are available to support industrial, commercial and institutional lands, and offers stormwater credit and wastewater rebate programs that assist qualifying customers, all of whom are currently industrial, commercial and institutional customers.

GOVERNANCE & ENGAGEMENT

MUNICIPAL GOVERNANCE

Halifax Regional Municipality Administrative Order (2018-001-ADM) ensures the efficient operation of Halifax Water by providing an accountability framework for the conduct of its business.

COMMUNICATIONS

With a resident/customer focused approach to communications, Halifax Water's Communications team works closely with Halifax Corporate Communications staff on multiple projects and initiatives in any given year. These efforts can run from joint messaging regarding service matters that may impact particular residents/customers, to more in-depth cooperation on integrated HALIFAX/Halifax Water capital projects that can extend over months. The common goal of any joint messaging is to provide residents/customers what they need to know, and how a particular project or program will affect and benefit them and the wider community. The cooperation can take the form of joint input on media releases, public service announcements, notices regarding public meetings, to broader collaboration on graphic design and messaging elements for public information sessions.

This collaborative effort continues when residents or news media are inquiring about an issue or project that may involve both entities. This helps ensure media outlets and residents receive the information they are looking for in a timely and accurate manner.

Keeping area Councillors informed about Halifax Water projects in their districts is a high priority for Halifax Water's Communications team. For large-scale projects, Halifax Water often involves the area Councillor(s) in the pre-public outreach phase to get advice on how best to interact with the residents. Being part of the process in the pre-public outreach phase helps ensure the area Councillor is well versed on the pending

work and helps Halifax Water staff focus their messaging to what is most important to the community. Area Councillors are also invited to attend Halifax Water community information sessions taking place in their districts. These sessions are especially important when aspects of the work has a more direct impact on residents, such as traffic or municipal service disruptions. By communicating in advance of the work starting, Councillors are more informed of activities happening in their districts.

This flow of information to Councillors also takes place on a more frequent basis for routine activities such as water main repairs, traffic disruptions or other Halifax Water related matters that can have a short-term impact on residents.

The municipality also has high-quality print, sign and graphic design services and Halifax Water utilizes these cost-effective services whenever possible.

PUBLIC ENGAGEMENT

Source Water Committees: Halifax Water maintains source water protection plans for twelve separate water supplies across the municipality. As part of the plan, every source water area has a Watershed Advisory Board to liaise with Halifax Water on issues related to the water supply. Each committee has members representing the utility, HALIFAX, the Province of Nova Scotia and private landowners.

Watershed Advisory Boards are an opportunity for engagement with residents. They are a mechanism for keeping the community apprised of Halifax Water activity and helps keep Halifax Water in touch with the local community.

Stakeholder Engagement: Halifax Water engages with stakeholders in many ways, some formal and some informal.

Formal stakeholder engagement includes NSUARB public hearings either in person or through paper processes regarding any changes in rates, development charges, changes to regulations and any capital expenditures greater than $1 M. Some groups that typically participate in these formal public hearing processes include the Consumer Advocate, Urban Development Institute, Investment Property Owners Association of Nova Scotia (IPOANS), Building Operators and Maintainers Association (BOMA), Nova Scotia Homebuilders Association, Construction Association of Nova Scotia, Ecology Action Centre, Conserve Nova Scotia, Sierra Club and Retail Association of Canada.

Halifax Water also conducts stakeholder consultation processes as part of major capital projects and development of strategic initiatives such as updating the IRP or RDC, or development of new programs and services. In 2021/22, Halifax Water has been conducting stakeholder engagement regarding the potential expansion of the stormwater service boundary on June 1, 2022.

There are many committees that Halifax Water participates in on a regular basis to ensure there is stakeholder consultation, such as the Halifax Utility Coordination Committee, and the Development Liaison Group.

FISCAL RESPONSIBILITY

Cost Containment Program: Cost containment is an on-going focus for the utility to help maintain and stabilize rates. A formal cost containment program has been in place since 2013/14. Cost containment results for the previous fiscal year are reported to the NSUARB by June 30th. Cost containment initiatives for 2020/21 totaled $7.79 M which includes the result of new initiatives implemented during the year, along with amounts of an ongoing nature from 2013/14 to 2020/21. The inclusion of initiatives and amounts from prior years reflects an intentional focus on sustainable results over the long term.

Water Loss Control: Reduction of non-revenue water (reducing leakage) is a key part of water distribution system management. Halifax Water was the first utility in North America to adopt a new approach to non-

revenue water management in 1999, and since that time, has been recognized as one of the leading utilities in this field in the world.

The methodology is designed to allow Halifax Water staff to quickly detect and repair leaks that run under ground and may not surface for days, weeks or months. By doing this, Halifax Water has reduced its water system inputs, saving direct water production costs for chemicals and electricity.

In addition to the economic benefit, there are other direct benefits to Halifax Water residents. A mature water loss control program enables the utility to find and repair water system leaks while they are small and insignificant. These small leaks will inevitably grow into larger leaks, often seen in news reports. These larger leaks disrupt transportation networks, require larger excavations, even street closures which impacts the quality of roadways and can lead to property damage and service interruptions.

Data collected over 23 years of water loss control has provided Halifax Water with insight into how pressure fluctuations can cause water main breaks. Halifax Water is now on the leading edge of examining how advanced analytics can be applied to early detection of system events in a manner that can prevent water main breaks from occurring.

Inflow and Infiltration (I&I) Reduction: I&I reduction is used as one of several tools in the overall Wet Weather Management Plan (WWMP). With guidance from the Regional Infrastructure Plan, the WWMP conducts several Sewer System Evaluation studies to achieve long term goals and extraneous flow reductions.

Halifax Water also completes private side inspections to source extraneous water that may be impacting regulatory compliance at the respective wastewater treatment facilities (WWTFs) that also supports the WWMP.

Enterprise Asset Management Including Cityworks: Halifax Water and the municipality both embrace Enterprise Asset Management (EAM) as a core corporate activity to ensure the efficient and effective management of the collective suite of infrastructure that serves the residents of the municipality.

Halifax Water produces an annual Asset Management Plan (AMP) covering the 14 core asset classes across water, wastewater, and stormwater services. The AMPs document the current inventory, replacement value, condition and recapitalization plan for each asset class promoting a comprehensive and cross corporate management approach to assets.

One of the core successes to date, for both Halifax Water and the municipality, is the implementation of a Computerized Maintenance Management System (CMMS) utilizing CityWorks software. Both agencies gained efficiencies from the use of a standard software platform. This was achieved through a single procurement process for the software and shared learning on the various deployments. The common platform also enables current and future information sharing opportunities.

SERVICE DELIVERY

SERVICE TO OUR BUSINESS

Halifax Water collaborates with the business community as partners and strives to find ways to enhance service delivery. Halifax Water has processes in place to enter into direct servicing agreements, and contract operations with businesses to support their operations.

Utility Locates: Locating buried infrastructure is a necessary process to any construction project that requires excavation. Locates are required to protect workers, protect buried infrastructure, and minimize the opportunity for interruptions in service caused by contractors striking buried infrastructure. As awareness of the necessity for locates has increased, utilities have seen rapidly escalating demands for infrastructure locates placing a strain on resources and business processes. Timely, accurate locates are necessary to allow construction projects to proceed on time and on budget.

Halifax Water has taken several steps in recent years to meet the demand for locates and respond to concerns of the municipality and the contractor community. Halifax Water is now part of a one-call locate requesting process operated by Info-Excavation. This step reduces the barriers to contractors and developers seeking to do excavation work in the municipality.

Permitting: Last year Halifax Water participated in the implementation of a new permitting system with the municipality, that significantly streamlines and improves the permit process and timely sharing of information between the municipality and Halifax Water.

SERVICE TO OUR PEOPLE

Customer Care Strategy: Halifax Water has a long tradition of high customer satisfaction as confirmed through annual surveys conducted through Narrative Research. Customers overall satisfaction with the quality of service is 96%. Although it is gratifying to receive this feedback, Halifax Water continues to look for opportunities to improve service delivery. Halifax Water implemented an on-line customer portal "Customer Connect" in November 2020 and, in 2021/22, implemented enhancements to the portal and improved business processes to proactively inform customers of potential high consumption or leaks.

Halifax Water works closely with municipal staff on business processes where there is a shared responsibility, with a view to ensuring that business processes are clear.

Bulk Fill Stations and Portable Water Stations: Halifax Water has five bulk fill stations throughout the service area to support water haulers who deliver potable water to rural residents or for construction-related purposes. In the past, Halifax Water has supported significant public events throughout the summer months with portable water stations, however COVID-19 restrictions and public health concerns have limited this kind of activity.

Integrated Stormwater Policy: The municipality and Halifax Water continue working together to assess and respond to service requests from residents relating to stormwater management. Staff within both agencies at the customer service and operational levels have developed protocols to manage issues behind the scenes to optimize service to residents, minimizing "transfers" of calls.

With increased awareness of climate change and the impact that stormwater has on both public and private infrastructure and the environment, Regional Council and the Halifax Water Board recently approved the framework for an Integrated Stormwater Policy in 2018. The Integrated Stormwater Policy is structured around seven main themes, establishing roles and responsibilities for our respective organizations, the Province and the private property owner.

Integrated Capital Program for Halifax Water Infrastructure and Municipal Streets: A significant portion of Halifax Water's annual capital program involves the renewal of water distribution, wastewater and stormwater collection infrastructure in an integrated approach with the municipality's annual Roads and Active Transportation Capital Program. Water, wastewater and stormwater pipes and appurtenances are replaced or rehabilitated, when approaching or exceeding their useful life, most cost effectively while the municipal street is renewed. The integration reduces the total project cost and minimizes the overall disturbance of neighbourhoods. The various project designs and specifications are coordinated into a single construction tender administered by one of our two organizations. In 2020/21 Halifax Water launched an enhanced Lead Service Line Replacement Program which results in a more effective approach to ensure the private lead service laterals are replaced in conjunction with the municipal Roads and Active Transportation Capital Programs.

This year, we will be integrating with municipal projects on 12 streets in Halifax and Dartmouth to remove LSL's. These include:

- Artz St.
- Dalhousie St.
- Dublin St.

- Flinn St.
- Hunter St.
- Oakland Rd.
- Roosevelt Dr.
- Tower Rd.
- Oak St.
- Churchill Dr
- Harbourview Dr.
- South Park St.

INNOVATION

Advanced Meter Infrastructure (AMI): In 2016, Halifax Water launched Customer Connect; a program to convert 85,000 water meters to AMI. AMI is a system where water meters are equipped with an electronic communication device to capture data in real time. Rather than reading meters quarterly by walking or driving routes, meters are read hourly through a fixed radio network installed throughout the service area.

Customer Connect provides customers with the opportunity to view and manage their water consumption information through a web-based customer portal. It also allows Halifax Water to provide better information to customers to manage their account and water consumption. Halifax Water will eventually be able to provide monthly billing to residential customers, which will help some customers manage their household finances. Halifax Water has paused that initiative for the time being, to avoid the additional operating expense associated with monthly billing.

The Customer Connect project completed, with over 98.9% of meters converted, and the Customer Connect Portal launched in November 2020. There will be continued enhancements in future to realize the benefits of improved business processes and enhanced and improved data. The system also provides Halifax Water with better information about water use patterns, which will aid in system design and operation.

Artificial Intelligence and Machine Learning: Halifax Water is exploring new technology that will improve our level of service by using artificial intelligence to provide early notice of flow and pressure anomalies before they turn into events which could disrupt service. Halifax Water is also conducting a pilot using machine learning to help analyze data and relationships between variables to help predict the likelihood of lead service lines. The proliferation of new smart technology in the water sector has prompted Halifax Water to develop a roadmap for “intelligent water” in 2021/22 that will be used to refine the current IT Strategic Plan and develop a digital water strategy in 2022/23.

Active Research Program: Halifax Water pursues innovation through practice and research. Halifax Water pursues industry-leading research in collaboration with Dalhousie University through NSERC, Industrial Research Chair program. Building on the research successes of the last ten years in drinking water, this research initiative has been expanded to include wastewater research. Through innovation and optimization practices, Halifax Water was able to achieve full environmental compliance with the federal Wastewater System Effluent Regulations at every wastewater treatment facility. Halifax Water employs innovative practices in the delivery of operational and capital projects; this facilitates efficient execution of the projects in terms of cost reduction and schedule control.

Halifax Water is also a member of the Water Research Foundation and through this relationship has pursued innovation by active engagement in research projects. Halifax Water staff also take advantage of opportunities to participate as project advisory committee members for relevant Water Research Foundation projects. In this way, Halifax Water staff have the opportunity to learn best practices from some of the most innovative utilities.

In 2018, Halifax Water was awarded a tailored collaboration project from the Water Research Foundation, which built on research conducted by Dalhousie University into changing source water (lake recovery). The project developed a decision support tool for utilities experiencing source water changes, which has helped Halifax Water optimize the capital investments that will be required under a new multi-year Water Supply Enhancement Program to upgrade treatment plants to adapt to changes in lake recovery.

HEALTHY, LIVEABLE COMMUNITIES

PUBLIC SAFETY

Lead Service Line Replacement Program: Lead in drinking water continues to be an important issue for water utilities and their customers in recent years. Water leaving the treatment plants of Halifax Water is lead free, but lead, used for service piping up to the mid 1950's can be a source of lead in drinking water. While the water utilities serving Halifax and Dartmouth have been working since the 1970's to remove lead services, many still remain and lead in drinking water continues to be a concern for customers in peninsular Halifax and Central Dartmouth. In 2016, Halifax Water adopted a program aimed at removing all lead from the water system.

One of the complications in removing LSLs is that Halifax Water and the customer jointly own the water service. Halifax Water owns the portion in the street right-of-way while the customer owns the portion on private property. Further complicating the matter, research has shown that partial replacements (replacing only the customer or utility portion, but not the other portion) does not assist in solving the problem and can make the situation worse.

There are many barriers that prevent customers from replacing their LSLs. The foremost among these is cost. For this reason, Halifax Water sought approval from the NSUARB to provide financial assistance to customers replacing their LSL. In August 2017, the NSUARB approved a program to enable Halifax Water to provide a 25% rebate for customers replacing their LSL and to replace LSLs that are disturbed during emergency repairs, at the utility's expense. Halifax Water was one of the first utilities in North America to take this step. To further reduce barriers to replacement, Halifax Water received approval from the NSUARB in 2018 to provide customers with a financing program for the balance of the replacement cost.

In 2020, Halifax Water received approval from the NSUARB to replace the entire LSL at utility expense in certain situations. This is consistent with an emerging best practice across North America and removes the most significant barrier to LSL replacement. The new program became effective on October 1, 2020, and the first replacements under the new program occurred in the 2021 construction season. Lead service lines are renewed based on one of four programs:

- Most renewals each year will be done in conjunction with the Roads and Active Transportation Capital Program. Each year, subject to funding availability, Halifax Water will seek to renew every LSL within the bounds of these municipal projects. Integrating with these projects allows Halifax Water to share in the street restoration costs with the city. This reduces the cost of replacement, allowing Halifax Water to maximize the use of available funds and the number of replacements each year. This approach also limits community disruption by largely limiting construction to already planned construction projects and preserves municipal pavement quality by minimizing the needs to go back after paving to renew a lead service line.
- Halifax Water will replace a number of lead service lines each year, at utility cost for residents who apply to this program. Priority will be given to at-risk populations, namely homes with pregnant mothers or young children.
- In future years, Halifax Water will develop further programs to target other priority groups or communities for LSL replacement.
- Customers who do not qualify for one of the above programs will still be eligible to replace their LSL and receive the 25% rebate.

Wastewater Lateral Replacement Program: To facilitate the provision of wastewater service to our customers, Halifax Water owns and maintains the individual wastewater laterals between the mainline and the property line. Consistent with other assets, wastewater laterals require replacement as they reach the end of their service life. Compounding the management effort of these laterals is the fact that laterals are often compromised by root infiltration from street trees and a once popular lateral pipe material, (no-corrode), has a shorter than expected life span.

Halifax Water approaches this wastewater lateral replacement program both reactively and proactively. The reactive program provides an immediate replacement response from our operations group when a lateral fails. When the cause of the failure is within the municipality's streets, Halifax Water completes the repair/replacement with the cost of the program offset by the municipality mutually agreeing to adjust water and wastewater appurtenances to grade during street rehabilitation programs. This approach is efficient as the work stays within the organization best able to respond and provide the service and avoids a complex cost recovery exercise.

The proactive portion of the wastewater lateral replacement program identifies laterals that are approaching the end of their useful life and replaces them in advance of failure in conjunction with other capital projects such as a main renewal or a municipal street rehabilitation. This creates a more cost-effective overall program and helps minimize future asphalt cuts. These replacements are completed by both traditional open cut methods, and innovative trenchless solutions, depending on the site conditions.

The annual cost for wastewater lateral replacement program for 2022/23 is approximately $2.3 M.

ENERGY & ENVIRONMENT

Protection of the environment is embedded in the mission of Halifax Water. Halifax Water strives to minimize wastewater overflows to the environment through system optimization and through its WWMP. This initiative has another direct benefit of reducing wastewater pumping and treatment, which reduces energy and chemical consumption, and carbon emissions.

Energy Management Program: Halifax Water has a mature Energy Management Program (EMP) and is committed to creating and ensuring an ongoing focus on sustainability and energy efficiency throughout all operating areas. This program is carried out in relation to Halifax Water's Energy Management Policy and delivers energy efficiency initiatives that have resulted in annual energy reductions of 2% to 4% per year since inception.

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, and environmentally responsible energy use.

Climate Change: Climate change is a documented global phenomenon. Changes will be gradual, progressive, and affect communities and natural systems. Climate change may have a number of effects on the water cycle and natural water systems, with resulting impacts on water, wastewater and stormwater operations and infrastructure.

The development of an Integrated Stormwater Management Policy by Halifax Water and the municipality acknowledges the critical inter-relation of stormwater issues and thus the inter-relationship of climate change impact.

Staff from Halifax Water work jointly with the municipality to understand the underlying details of climate change and the physical, planning, financial and legal implications on our collective classes of infrastructure.

In 2020/21, Halifax Water developed a Vulnerability to Climate Change framework for a simple rating system to rank the sensitivity and severity of climate change impacts relative to the individual asset. Additionally, the Infrastructure Master Plan (IMP) addresses climate change as it relates to design

standards and long-term planning. Both initiatives will inform the overall understanding of climate change in the municipal context and inform the municipality's next version of the Regional Plan.

In recognition that climate change adaptation and mitigation activities cross many projects, programs and services at Halifax Water, in 2021/22, Halifax Water established an internal Climate Resiliency Committee and commenced work on a Climate Action Plan to develop and coordinate climate adaptation and mitigation activities, in alignment with HaliFACT2050.

Water Quality Monitoring:

Halifax Water has an established Water Quality Master Plan and water quality monitoring programs. As the municipality explores re-establishing a water quality monitoring program for lakes, Halifax Water will provide technical support and advice to the municipality as required.

Collaboration on Legislative/Policy Issues: Halifax Water and the municipality collaborated in 2021/22 to provide feedback through a public consultation process being conducted by Environment and Climate Change Canada regarding the establishment of a Canada Water Agency.

Environmental Management System: An Environmental Management System (EMS) is a system of procedures, records, and processes to manage environmental issues. The EMS program can be audited against International Standards Organization (ISO) 14001 standards, and if found to comply, receives a Certification through our ISO registrar, SGS Canada.

Halifax Water has had an EMS program since 2003 when the Pockwock JDK, Lake Major and Bennery Lake Water Treatment Facilities became the only ISO certified water supply plants in Atlantic Canada. EMS has gradually been expanded to include wastewater treatment plants and, in December 2016, the Herring Cove Wastewater Facility (WWTF) became the first wastewater facility in Atlantic Canada to obtain an ISO 14001 Certification, with other major WWTF following in subsequent years. Through the EMS program, Halifax Water has developed an increased awareness of compliance obligations, managed waste and energy more efficiently, reduced risk of disaster, improved emergency management and created a culture of continuous improvement.

In 2020/21, Halifax Water developed a framework for a corporate wide EMS program which has commenced and will be completed over a three-year period. Expansion of the EMS program presents a significant opportunity to reduce Halifax Water's impact on the environment.

RECREATION & LEISURE

Wastewater Treatment: The treated wastewater from Halifax Water facilities has to meet strict environmental criteria so that it is fit for contact recreation. Halifax Water strives to meet all effluent permit requirements so that water bodies are available for swimming and other recreation purposes. The stormwater cleaning program and oil spill response initiatives mitigates impacts on receiving waters. Halifax Water has ongoing optimization initiatives at its WWTFs to improve effluent water quality.

Wet Weather Management: The Halifax region has a significant number of water bodies that contribute to the overall quality of life for residents. Halifax Water has an industry recognized WWMP that strives to keep wastewater overflows to a minimum; this is a long-term commitment with significant positive impacts on the environment and the quality of life for residents who frequent waterfronts and beaches. The reduction in overflows, effluent monitoring and public communication of these initiatives promote public awareness of water quality which supports water based recreational activities.

With significant maturity in Halifax Water's Regional Infrastructure Plan and IRP; the WWMP takes guidance from these plans to focus its activities in the priority sewersheds. The wet weather reduction activities are expanded into additional areas in a phased approach to align with the capital works in different sewersheds.

Active Transportation and Recreation Initiatives: Halifax Water has significant land holdings in communities across the municipality. Most of this land is for water supply protection or Halifax Water facilities. From time to time, Halifax Water has been able to work with municipal staff to make Halifax Water land available to facilitate community projects. Examples of this include:

- The development of the Chain of Lakes trail through the Chain Lake watershed.
- Provided access to land along North Preston Road to establish the Preston Area community trail.
- Provided reservoir site land to establish a community field in North Preston.
- Provided land to establish trailhead parking for Long Lake Provincial Park.
- Provided access across its transmission main corridors through Mainland Common, Wedgewood Park and Bedford to support active transportation.

Halifax Water has also worked directly with other community recreation groups where low impact uses are compatible with source water protection, including the Atlantic Geocaching Society, Bicycle Nova Scotia, and the Nova Scotia Federation of Anglers.

COMMUNITY WELL BEING

High Quality Drinking Water: A safe, reliable supply of drinking water, along with adequate fire protection is fundamental to the health and economic prosperity of any community.

Halifax Water uses the multiple barrier approach to ensure the continued safety and reliability of the water system. The multiple barrier approach is a framework designed to make sure drinking water is protected on multiple levels. Elements of the multiple barrier approach include:

- Source Water Protection: Ensuring that our water sources remain healthy and not degraded by manmade impacts.
- Optimized Treatment: Making sure that our water treatment plants are producing high quality water, sustainably and at a reasonable cost.
- Sound Distribution System Management: Involves making sure that once water leaves the treatment plant its quality is protected all the way to the tap. This is accomplished by a robust maintenance system with standard operating procedures for the water distribution system.
- Continuous Monitoring and Testing: Halifax Water takes thousands of tests each year to ensure that drinking water quality is maintained.
- Cross Connection Control: Halifax Water maintains a system for making sure that high-risk Industrial, Commercial, Institutional (ICI) customers install, maintain and test backflow prevention devices on their services, which prevent contaminants within a building from getting back into the water system.
- Emergency Management Plans: Halifax Water maintains and exercises emergency management plans to help ensure continuity of service even when things do not go as planned.

Further, Halifax Water has a robust Water Quality Master Plan, which will be updated and enhanced to form a Water Safety Plan. Work on the Water Safety Plan commenced in 2021/22 and will continue in 2022/23. This consists of forward-looking plans to identify regulatory and environmental factors that affect water quality and to design programs to address these factors before they impact water quality. The NSERC – Halifax Water Research Chair in Water Quality and Treatment, supports Halifax Water's current Water Quality Master Plan, and the Water Safety Plan.

High Quality Wastewater: Halifax Water takes a risk-based sewershed approach to manage its wastewater infrastructure, protecting the receiving environments and public health where contact recreation is enjoyed. The wastewater systems are maintained to industry standards to minimize overflows from the collection system, and at treatment facilities, every effort is made to treat the wastewater to comply with permits issued by Nova Scotia Environment. The WWMP also integrates efforts with small systems that

have historically faced compliance challenges. As a result of this integration, there has been significant overflow reductions in small systems.

Halifax Water also works collaboratively with municipal staff to ensure that the stormwater systems operate to their highest potential and minimizes impacts to lakes and streams as a result of pollution prevention activities by both organizations. Halifax Water takes a lead role in emergency spill response. Halifax Water's pollution prevention team conducts hundreds of inspections every year to ensure ICI sector compliance with Halifax Water Regulations.

Halifax Water continuously looks for opportunities to maximize the use of its installed infrastructure capacity. This may be achieved by shifting wastewater loads across sewersheds, treatment plants and pump stations. All of the WWTFs are compliant with current Wastewater System Effluent Regulations.

Halifax Water is also taking proactive steps to treat emerging contaminants at its facilities and supports research for treatment of contaminants of emerging concern. Although not required by regulations at this time, the membrane technology utilized for the Aerotech facility can treat several emerging contaminants such as microplastics and microfibers. This technology was also installed at the Frame WWTF where the outfall discharges to a lake that is used for contact recreation. Halifax Water will continue to be compliant through continued research, infrastructure investments and industry best practices. Halifax Water's WWMP is following industry best practices and is fully integrated with other programs within Halifax Water.

Halifax Water has completed several infrastructure plans for all categories of infrastructure be it pipes, pump stations, treatment plants etc. to continuously improve performance and sustain production of high-quality wastewater.

Halifax Water is working with Dalhousie University on wastewater research with an initial focus of improving wastewater quality at the Halifax and Dartmouth WWTFs. The goal of the research is to inform more formalized plans for how the Harbour Solutions treatment plants will meet Wastewater System Effluent Regulations by 2040, which require the equivalent of secondary treatment.

SOCIAL DEVELOPMENT

SOCIAL INFRASTRUCTURE

Water Rate Affordability: Although socio-economic rate making is not considered under the *Public Utilities Act*, Halifax Water does have programs that support customers with low incomes.

Since 2010, Halifax Water has partnered with the Salvation Army to provide emergency assistance to customers with low incomes through the H20 (Help to Others) Program. This program is available once in a 24-month period to a maximum grant of $250 with funds provided from unregulated activities. In April 2018, Halifax Water implemented some changes to enhance the program and have a broader impact by increasing the income eligibility thresholds and amount of assistance available.

In 2017, Halifax Water implemented a program to provide a rebate to customers of 25% of the cost of private LSL replacements, up to a maximum of $2,500, and in 2020, this program was expanded to pay the full cost of private LSL replacements. This program benefits all customers replacing LSLs, as there is no income threshold.

In 2018, Halifax Water implemented a program to provide favourable financing options to customers doing full replacement of the private portion of water or wastewater laterals, or private laterals connected to new deep stormwater installation in areas where none previously existed.

In 2020, Halifax Water received approval to implement changes to the Regional Development Charge (RDC) that will assist with development of Affordable Housing. These changes were implemented in 2021.

To monitor rate affordability on an on-going basis, Halifax Water compares rates against 14 comparator Canadian cities, and monitors the total annual residential bill as a percentage of median household income for Halifax. The current combined rates are equivalent to 1.1% of the median household income and are well below industry benchmarks for affordability.

TRANSPORTATION

INTERCONNECTED AND STRATEGIC GROWTH

Right-of-Way Liaison with Halifax Regional Municipality: Halifax Water owns over 3,000 km of buried infrastructure along with thousands of valves, manholes, chambers, fire hydrants and pumping stations. The vast majority of these assets are located in the municipally owned street right-of-way.

Both Halifax Water and municipal staff work on a number of fronts to ensure that work in municipal roadways is coordinated and causes minimal disturbance to members of the public who rely on the transportation network and that public safety services are maintained.

- Halifax Water and municipal staff are members of the Halifax Utility Coordinating Committee (HUCC) along with other utilities. HUCC meets monthly to coordinate planning of infrastructure projects.
- Halifax Water and municipal engineering staff meet as part of a well-established process to coordinate and deliver integrated capital projects. This serves to reduce overall project cost and inconvenience to residents.
- Halifax Water operations staff and municipal right-of-way staff meet regularly to ensure that Halifax Water maintenance work in the right-of-way meets municipal requirements.

FINANCIAL IMPLICATIONS

The $164.4 M in operating and non-operating expenditures required to fund Halifax Water's 2022/23 Business Plan is $1.6 M or 0.98% more than the $162.8 M required last year. The operating and non-operating expenditures are funded through rates approved by the NSUARB. If the current regulated utility structure were not in place, the municipality would be responsible to provide water, wastewater and stormwater service placing an additional burden on the municipal budget and tax rates.

The municipality provides a blanket guarantee for Halifax Water's debentures through the Municipal Finance Corporation, and the utility must maintain a debt service ratio less than 35%. Halifax Water's capital financing strategy uses a mixture of financial instruments for infrastructure funding, including development related charges, reserves, depreciation, and debt. The debt service ratio based on the approved 2022/23 Operating Budget is 19%.

Halifax Water provides a grant in lieu of taxes in the form of an annual dividend to the municipality based on the utility's rate base. As capital investment in assets increases, so does the dividend. The dividend agreement was renewed in 2020/21 to introduce dividends based on the wastewater and stormwater rate base in addition to the traditional water rate base. For the 2022/23 fiscal year, the utility has budgeted to pay a total dividend of $6.8 M to the municipality.

RISK CONSIDERATION

In 2019, Halifax Water completed an Enterprise Risk Management (ERM) Framework, and the Halifax Water Board approved an ERM Policy, and a risk appetite and tolerance matrix. There are seven broad risk categories outlined in the policy, which align very closely to the critical success factors in the Corporate Balanced Scorecard. The risk categories and critical success factors may both change over time and it is important that they alignment. The more closely the risk categories and critical success factors align the less opportunity there will be for confusion or goal misalignment.

In 2020, a terms of reference for an ERM Halifax Water Board Committee was approved and the Committee started meeting in 2021/22, following the hiring of an ERM Program Manager. The ERM Policy has been implemented and risk-based reporting to the Halifax Water Board has commenced and will continue to evolve. It will take several years to fully embed ERM within Halifax Water. In addition to working on ERM, the ERM Program Manager is coordinating internal audits with a focus on promoting policy and compliance with Standard Operating Procedures (SOPs). Compliance with policies and SOPs is important to help manage risk.

Some of the most significant risks facing Halifax Water relate to infrastructure. There are financial risks including insufficient revenues to meet the projected operating requirements, and insufficient capital funding to meet the IRP recommended level of spend.

COMMUNITY ENGAGEMENT

Halifax Water regularly engages with the community. As facilitated through Halifax Water and NSUARB regulatory processes in conformance with the *Public Utilities Act.*

ENVIRONMENTAL IMPLICATIONS

Environmental stewardship is embedded in Halifax Water's mission, and environmental implications are described in the annual Business Plan, the Five-Year Business Plan, and the Annual Report.

As noted above, Halifax Water will be expanding the Environmental Management System (EMS) corporate wide to include more day-to-day operations activities with a goal of minimizing impact on the environment.

ALTERNATIVES

N/A

ATTACHMENTS

Appendix A - Halifax Water 2022/23 Business Plan

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

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2022-23 Annual Business Plan

Halifax Water

Working together with mutual trust, respect and shared values that focus on our commitment to customers, community, and the environment.

- **People**
- **Health, Safety & Environment**
- **Financial & Regulatory Accountability**
- **Operational Excellence**

Approved by the Halifax Water Board
January 27, 2022

Presented to Halifax Regional Council
February 15, 2022

One Team, One Water

GLOSSARY

AM	Asset Management
AMI	Advanced Meter Infrastructure
AMP	Asset Management Plan
BCP	Business Continuity Plan
BPF	Biosolids Processing Facility
CAD	Computer Aided Drafting
CAP	Climate Action Plan
CBS	Corporate Balanced Scorecard
CCC	Capital Cost Contribution
CCME	Canadian Council Minister of the Environment
CPI	Consumer Price Index
CSF	Critical Success Factor
CSO	Combines Sewer Overflow
DEI	Diversity, Equity, and Inclusion
DES	District Energy System
DFO	Department of Fisheries and Oceans
DLS&I	Department of Labour, Skills & Immigration
DOE	Department of Energy
EMAP	Energy Management Action Plan
EMP	Emergency Management Plan
EMS	Environmental Management System
ERM	Enterprise Risk Management
ERP	Enterprise Resource Planning
ETS	Engineering and Technology Services
GHG	Green House Gas
GIS	Geographic Information System
H2O	Help to Others (Program)
HHSP	Halifax Harbour Solutions Plant
HRWC	Halifax Regional Water Commission
I&I	Inflow and Infiltration
IC&I	Industrial, Commercial & Institutional
ICIP	Investing in Canada Infrastructure Program
IFRS	International Financial Reporting Standards
IMP	Integrated Master Plan
INFC	Infrastructure Canada Fund Programs
IRP	Integrated Resource Plan
IS	Information Services
IT	Information Technology
LED	Light-emitting Diode
LOS	Level of Service
NOM	Natural Organic Matter
NSECC	Nova Scotia Environment and Climate Change
NSERC	Natural Sciences and Engineering Research Council
NSPI	Nova Scotia Power Incorporated
NSPW	Nova Scotia Public Works
NSUARB	Nova Scotia Utility and Review Board
OI	Organizational Indicator
RDA	Regional Development Area
RDC	Regional Development Charge
RDII	Rain Derived Inflow and Infiltration
RDP	Regional Development Plan
RF	Radio Frequency
RFP	Request for Proposal
RFQ	Request for Qualifications
SCADA	Supervisory Control and Data Acquisition
SMS	Safety Management System
SSES	Sanitary Sewer Evaluation Survey
SSO	Sanitary Sewer Overflow
UV	Ultraviolet
WRWIP	West Region Wastewater Infrastructure Plan
WSEP	Water Supply Enhancement Program
WSER	Wastewater System Effluent Regulations
WSP	Water Supply Plant
WWMP	Wet Weather Management Program
WWTF	Wastewater Treatment Facility

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INTRODUCTION

Halifax Water is an integrated water, wastewater and stormwater utility that serves more than 106,000 customers and an estimated population of 383,000.

This document outlines the utility's business plan for fiscal 2022/23, which officially begins on April 1 of 2022.

For 2022/23, Halifax Water has developed a plan that addresses the challenges of growth, aging infrastructure, and the increasing demands of customers. In addition to addressing these challenges, this plan focuses on ensuring Halifax Water customers continue to receive quality service and that the utility's employees are supported and empowered with the resources needed to achieve this.

MISSION

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

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.

VALUES

Relationships - We nurture relationships with our customers, our team members, and the environment. We are engaged in the neighbourhoods we serve, and we support continual learning across our team.

Innovation - We are among the top utilities across the continent and we are known on the global stage. We always ask, "how can we improve efficiency, sustainability, creativity and the customer experience?"

Accountability - We refuse to cut corners. We check in with our excellence standards regularly and look to one another for support. Safety steers our decision-making. We are driven to make our policies, decisions, and projects as clear as our drinking water.

Protection - Halifax Water protects the health and well-being of our population. We exist to guard natural resources, finding ways to sustain our communities and environment.

EXECUTIVE SUMMARY

For 2022/23, Halifax Water will focus on our overall sustainability to improve our financial position and organizational capacity to ensure that we can meet the service demands of our current and future customers. The key drivers include the challenges caused by growth, aging infrastructure, as well as the costs of environmental compliance and protection.

For this fiscal year, Halifax Water will also increase its focus on environmental sustainability. This includes the implementation of a corporate-wide Environmental Management System (EMS), the completion of a Climate Action Plan (CAP) and continuing to ensure that major initiatives anticipate future environmental requirements and changing environmental conditions. For 2022/23, these major initiatives will include the Water Supply Enhancement Program, Water Safety Plan, Wastewater Treatment Facility Study, and Biosolids project.

Many of these are multi-year initiatives, but 2022/23 will be an important year of finalizing plans, studies and programs that will impact the utility and better serve customers for years to come.

We will be increasing the sustainability and capacity of our workforce by adding several new positions in areas that support capital project delivery, climate change, and stormwater service delivery. In addition to increasing our staffing complement, we will continue to focus on the physical and psychological health of Halifax Water employees as we continue to adjust to changing risks and public health requirements related to COVID-19.

For Halifax Water, the vast majority of our activities require cooperation and collaboration from multiple business units and workgroups. This is why this year we are approaching the business plan in a more collaborative way that is more reflective of who we are and what we are trying to achieve. Instead of focusing on departments or departmental and individual goals, we are now concentrating on corporate goals that clarify what we need to work on together - as a team.

These goals are now included in our strategic initiatives and programs under four pillars:

- People
- Health, safety, and environment
- Financial and regulatory accountability
- Operational excellence

We have set ambitious goals that are designed to bring immediate and long-term value to our customers. By working as one team, with a unified approach, we are looking forward to a successful year.

Cathie O'Toole

General Manager and CEO

STRATEGIC INITIATIVES AND PROGRAMS

People

We attract and retain high-quality team members in an inclusive and respectful work environment. We are committed to our customers and the communities where we live and work, determined to provide a high level of service and sustainable future through ongoing engagement.

Enhance workforce planning (talent management, meeting staff resource requirements, training, etc.)

Goal(s)	• Increase capacity by filling new positions budgeted in 2022/23. • Ensure people moving into new roles are properly oriented and set for success by revising the onboarding process by the end of Q2.
Rationale	• Halifax Water currently does not have the staffing capacity to deliver the annual capital program and planned new initiatives. Some areas of the organization are struggling to meet required service levels or experiencing poor work-life balance. To ensure new employees, and existing employees moving into new roles are successful, we need to properly orient them, provide reference materials and virtual tools, to support their professional growth in their position.
Impact	• Increasing staffing capacity will help mitigate several organizational risks such as critical infrastructure failure, environmental and regulatory risks. A risk that may prevent achievement of this goal is the competitiveness of the labour market for some technical/specialized positions and the capacity of Human Resources to hire and onboard newly established positions while keeping up with regular workforce turnover caused by internal movements, terminations and retirements.

Build a positive and diverse workplace

Goal(s)	• Halifax Water will complete initiatives outlined in the Diversity, Equity, and Inclusion (DEI) framework for 2022/23 and establish performance measures for DEI reporting by the end of Q2. • All employees at Halifax Water will continue to receive unconscious bias training. This was initiated in 2021/22 but delayed due to COVID-19 public health restrictions. • The 2021 Employee Survey results will be discussed with employees and an action plan developed to address areas for improvement by the end of Q1.
Rationale	• Halifax Water is committed to a workforce reflective of the customers we serve. Creating a diverse workforce that values equity and inclusion also helps create an organizational culture where respect and civility are valued; and psychological health and safety is promoted. High-performing organizations typically exhibit high employee satisfaction and engagement.
Impact	• Strong employee engagement and satisfaction will mitigate risk across the business by building a committed workforce and reducing complacency and presenteeism.

Increase stakeholder and customer engagement

Goal(s)	• Develop a comprehensive stakeholder engagement plan that is mapped to key priorities for 2022/23 by April 30. • Formalize and schedule ongoing stakeholder engagement opportunities by the end of Q1. • Benchmark status of advancing relationships at the end of each quarter in 2022/23.
Rationale	• As we continue to meet the needs of our customers and our community, it is essential that we engage with our various stakeholders. It helps establish a more collaborative framework of engagement that leads to positive and productive dialogue. Staying attuned to stakeholder/customer preferences and responding to them cultivates loyalty and fosters greater trust that in turn helps Halifax Water maintain the freedom to operate and enable continued innovation.
Impact	• As a community-owned utility, we operate based on financial, regulatory, and implicit social licenses that are provided based on the services we provide. To protect

	these licenses and mitigate the associated risks attached to each, it is essential that we proactively engage stakeholders. Apart from the continuing pandemic as a risk, communication is key to the success of these goals.

Support effective governance by the Halifax Water Board

Goal(s)	• Ensure orientation of new members or members changing roles on Board subcommittees and help these subcommittees develop workplans for 2022/23 by end of Q1. • Review and refresh the Halifax Water mission, vision, and values in Q2 and Q3 through a collaborative process involving employees and the Board. • Arrange spring (Q1) and fall (Q3) visits of Board members to a selection of Halifax Water facilities.
Rationale	• It is important that the Halifax Water Board provide effective governance oversight and strategic direction on mission, vision, values, and levels of service.
Impact	• Effective governance by the Halifax Water Board helps mitigate governance risk, and risks in all other areas. The Halifax Water Board has a key role in Enterprise Risk Management (ERM) through establishing corporate risk frameworks and risk tolerance levels.

Ensure that major initiatives have communication and stakeholder engagement plans

Goal(s)	• Develop communications and engagement workplans for each major initiative, project and/or issue at least 60 days prior to execution. Based on our overarching communications framework, these workplans will address capital projects, annual service programs, stakeholder work, and other internal and external initiatives as planned for 2022/23.
Rationale	• By proactively developing strategic plans that allow us time to prepare and communicate early, it allows us to understand and adapt as required to ensure our audience is fully informed and understands the work the utility is undertaking to help serve the community and customers better.
Impact	• Proactively engaging and communicating helps the utility mitigate the risk of slowdowns and or stoppage due to

		concerns from one or more groups. Without preplanning, the ability to identify and mitigate stakeholder/community risks is eroded.

Enhance information available to customers through Customer Connect and bill redesign

Goal(s)	• Hold customer focus groups to provide insight into the redesign of the customer bill by the end of Q1. • Develop a strategy to increase utilization of Customer Connect portal and its adoption rate by the end of Q2. • Develop a customer survey that will gather metrics on a quarterly basis by the end of Q4. • Based on customer feedback from focus groups and bill redesign, develop a strategy to enhance the Halifax Water website to create a more customer-friendly experience by the end of Q4.
Rationale	• Halifax Water must continually balance the demands of customers with providing value through the products and services it provides. The most effective way to understand the customer is to engage and seek input on a regular basis. By using customer data and feedback, Halifax Water can adapt to address the changing needs of customers in a more cost-effective way.
Impact	• These goals allow the organization to stay connected with customers. By working towards longer-term communication and engagement strategies for customers, we reduce the risk of customers losing trust in Halifax Water.

Health, Safety & Environment

We are focused on a safety-first culture, working to provide healthy, safe, sustainable, and reliable services for our community.

Continue to enhance safety and security culture, starting with Safety Leadership training

Goal(s)	• Introduce and commence Health and Safety Leadership Training 101 in Q2. • Begin the transition of the current Occupational Health Safety Program Manual into a formalized Safety Management System (SMS) in Q2, as updates to the Occupational Health and Safety Program Manual are completed.
Rationale	• Halifax Water is on a journey to become an industry leader in optimizing the health and safety of its employees. This includes the belief that health and safety is more than just a priority. It is a way of life, both at work and at home every day. • A positive work culture contributes to employee health and safety, job satisfaction and engagement, while enabling employees to contribute most effectively in their role of delivering high-quality service to our customers. • As we progress on this journey, we will focus on continuous improvement. This Safety Leadership training is a solid step in updating the Health and Safety Program. It will provide the foundation for future enhancements throughout Halifax Water by supplementing the culture of "Safely Working Together"
Impact	• The formalization of an SMS will help keep safety at the forefront of Halifax Water employees as they work to minimize complacency, which is often a contributing factor to workplace incidents. The appropriate resourcing and ensuring the availability of all employees will reduce the risk of to successfully implementing the SMS.

Secure approval for new biosolids strategy and execute a

Goal(s)	• Review and evaluate submissions from the Requests for Qualifications (RFQ) process which began in 2021, to identify potential proponents for a new Biosolids Processing Facility (BPF) by Q1. • Based on the RFQ process, develop, and implement a Request for Proposals (RFP) process that culminates with the selection of a preferred proponent by Q3 2022/23 (tentative).

contract for the new BPF		• Negotiate and execute a new long-term Biosolids Processing Facility Expansion/Upgrade and Operating contract (tentative).
	Rationale	• As the existing facility approaches its processing capacity limits and its end-of-life, Halifax Water must plan to upgrade/expand. As part of this, the utility must accommodate the forecasted increase in biosolids production, due mainly to population growth within HALIFAX, and HHSP secondary treatment requirements currently required by Canadian Council Minister of the Environment regulations by 2040.
	Impact	• This project will help mitigate the following risks: ○ Environmental – ensures continuity of our Biosolids Management Program and creates an opportunity to produce renewable energy to support climate change initiatives. ○ Financial – could significantly reduce the capital and operating costs to process biosolids, which can, directly and indirectly, benefit ratepayers. ○ Infrastructure and capital assets – ensure the upgrade/expansion of an existing asset that is approaching end-of-life. ○ Regulatory – ensures continued compliance with respect to biosolids processing capacity and beneficial re-use of biosolids. ○ Stakeholders – ensures continued and long-term delivery of expected Level of Service (LOS) to HALIFAX and our ratepayers.

Develop a Climate Action Plan

Goal(s)	• Develop a Climate Action Plan (CAP) for Halifax Water for approval of the Halifax Water Board in 2023/24.
Rationale	• A CAP will guide Halifax Water's planning and investment decisions and ensure long-term resiliency of its infrastructure. It will also allow the utility to establish targets and track the progress of mitigative measures and adaptation strategies, including reductions in greenhouse gas emissions, stormwater management, flood resiliency, water treatment, and vulnerability risk assessments.

	• This plan will align with HalifACT 2050 goals that provide value to Halifax Water's ratepayers and will also support the utility's Environmental Management System (EMS).
Impact	• As climate science continues to evolve, specific targets may be difficult to define and achieve; however, there is greater risk by not acting and planning for future infrastructure requirements accordingly. • A lack of action could lead to an increased risk in all Halifax Water risk categories, including the potential inability to provide service, higher risk of rate increases to cover costs of recovery from events, and impacts to the environment from climatic changes or infrastructure failure. By anticipating and planning, Halifax Water can adapt while continuing to provide a high level of service (LOS) to customers.

Align green initiatives for fleet and buildings with Climate Action Plan

Goal(s)	• Where appropriate, incorporate energy efficient vehicles as part of Halifax Water's Fleet Capital Upgrade Program in 2022/23. Halifax Water anticipates replacing up to five gasoline-powered ¼ and ½ ton service trucks with self-charging hybrid ¼ ton service trucks. These units have been tendered and delivery is expected at the end of Q3 or early Q4 2022/23. • Upgrade lighting controls at 450 Cowie Hill building to energy efficiency in Q1/Q2.
Rationale	• This represents the first significant step to "greening" the Halifax Water fleet of vehicles. By successfully adopting these vehicles into our current inspection and supervision fleet, we reduce greenhouse gas emissions. In addition, we can develop internal support and employee buy-in for utilization of these vehicles in other business applications. • Upgrades to the existing lighting controls will improve overall building efficiencies and reduce electricity consumption.
Impact	• The introduction of more energy efficient technology allows the utility to progress towards a more environmentally sustainable business. There is a risk that these vehicles and lights could be delayed due to supply chain disruptions.

Maintain regulatory compliance and enhance reporting

Goal(s)	• Implement the rollout of the enhanced reporting requirements and procedures in Q1. • Complete rollout, monitor effectiveness and adjust as necessary in Q2 and Q3.
Rationale	• Our regulators (*e.g.*, NSECC, Environment Canada, Department of Fisheries and Oceans) require Halifax Water to provide consistent and timely reporting of non-compliance events related to Combines Sewer Overflows (CSO), Sanitary Sewer Overflows (SSO) and other water system issues. These events are generally related to planned maintenance, emergency repairs or wet weather events. Halifax Water staff addressing these situations understand the importance of reporting these events to the Regulatory Compliance team.
Impact	• Enhanced monitoring and reporting will help reduce the risk of non-compliance with regulations and environmental legislative requirements. There will be less manual process, less reliance on specific individuals, and clear methods and guidance for employees. Although the risk is low, there is the potential that this goal may not be achieved if staff are not fully engaged or participating in this process.

Launch new service compliance program

Goal(s)	• Achieve final approval of the Compliance Program Project Charter in Q1. • Conduct a comprehensive stakeholder engagement process in Q2 and Q3. • Review feedback and develop an options analysis by Q4. (Note: projected to be operational in Q4 of 2023/24).
Rationale	• The goal of this compliance program is to eliminate the majority of the private side sources of Inflow and Infiltration (I&I) entering the wastewater system. This is a long-term and sustainable approach to reduce I&I entering the wastewater system, which otherwise results in increased collection and treatment costs for Halifax Water.
Impact	• By increasing focus on compliance, it reduces the risk of wet weather overflow events and additional operational costs Halifax Water incurs for the conveyance and treatment of extraneous water in the wastewater systems. This project will involve other departments within the

	utility, which will require resource commitments from them for this to be a success.

Implement corporate Environmental Management System (EMS)

Goal(s)	• The initial rollout and general environmental awareness training commenced in Q3 of 2021/22 and should be completed by Q1. • Complete internal audits for all groups at 450 Cowie Hill Road, Water Quality, Fleet and Logistics, as well as at the Lakeside/Timberlea Wastewater Treatment Facility in Q2/Q3.
Rationale	• EMS is a system of procedures, records, and processes to manage environmental issues and assist with regulatory compliance. It also makes day-to-day operations more sustainable and engages employees in these operational activities. It is audited against ISO 14001 standards, and if compliant, achieves ISO certification. This standard focuses on organizational leadership, risk identification and the associated influences, internal and external, to an organization. • Expanding the program will provide more consistency and comprehensive strength to Halifax Water's management of risks in protection of the environment and compliance within its operating systems.
Impact	• The EMS system and ISO certification is designed to reduce the risk of events that may impact the environment and potentially non-compliant events. This project will involve various departments within the utility, which will require resource commitments from them for this to be a success.

Execute the Get the Lead Out Program

Goal(s)	• Replace 150 public and 200 private lead service line replacements in 2022/23 as outlined in Halifax Water's proposal to the Nova Scotia Utility and Review Board (NSUARB) in 2020.
Rationale	• The Get the Lead Out program was accepted by the NSUARB in August of 2020, with a goal of removing all lead service lines from the main to the meter at Halifax Water's expense by 2038 through coordination with HALIFAX on paving programs and development of targeted programs.

	• Get the Lead Out was launched in 2021, and programs have been developed to replace lead services in coordination with paving projects and through a property owner-requested replacement program. • 2022/23 sees the continuation of this program and implementation of lessons learned from 2021/22 to both reduce costs and streamline processes to meet replacement goals.
Impact	• Lead service lines can result in increased lead at customers taps. Corrosion control can reduce but not eliminate lead exposure, and orthophosphate used for corrosion control is a costly product. Therefore, removal of lead service lines in a cost-effective and timely manner both addresses the public health impact and reduces utility costs in the long run through reduced requirements for corrosion control chemicals. The continuation of the COVID-19 pandemic could impact internal and external resource availability (both human and material) and costs.

Financial & Regulatory Accountability

Ensuring that Halifax Water has capacity to fund existing and future infrastructure, we prudently manage assets and operate our business by balancing value and customer service. Improve financial position and update the long-range financial plan.

Optimize capital project planning and delivery

Goal(s)	• Develop a plan to align engineering and asset management functions to optimally deliver the Integrated Resource Plan (IRP) level capital expenditure of $130 million annually in Q1. • Implement a capital project planning and management system by Q4. • Implement a formal governance process for capital project monitoring and oversight by Q4.
Rationale	• Halifax Water's 2019 IRP identified $4 billion in capital spending over a 30-year period. This was developed to meet the infrastructure needs of the utility and is driven by asset renewal, growth, and regulatory compliance. The IRP represents a quadrupling of Halifax Water's capital spending from just ten years ago. To deliver these projects when required and at optimal cost, Halifax Water requires a greater level of planning integration with other stakeholders as well as additional human resources and new systems and processes.
Impact	• Successful delivery of IRP projects ensures Halifax Water continues to provide service and avoids the cost of infrastructure failure or a breach of environmental regulations. It also ensures Halifax Water can accommodate growth within the municipality.

Progress asset management and infrastructure planning initiatives

Goal(s)	• Update and approve Halifax Water's Asset Management policy by Q1, and initiate Asset Management strategy scope by August 31, 2022. • Confirm Sanitary Sewer Overflow (SSO)Management scope of work by June 30, 2022 and award the Request for Proposals by September 30, 2022. • Refine the methodology to calculate the benefit to existing customers by February 28, 2023. • Realign LOS initiative with Halifax Water's overall corporate strategy October 31, 2022. (NOTE: this is tied to

	the maintaining a high level of day-to-day service goal on pg. 39)
Rationale	• Effective asset management practices are crucial to both optimal planning and execution of capital projects with a sustainable financial plan to fund them. It also helps to optimize the overall lifecycle cost of assets by conducting maintenance and renewal interventions at the right time to ensure the utility meets the accepted LOS.
Impact	• It mitigates the risk of premature asset failure. By avoiding catastrophic failure, it also helps to ensure continuous service and avoid spending more than necessary to maintain assets.

Complete an actuarial valuation of the Halifax Water Employees' Pension Plan and implement recommendations

Goal(s)	• Halifax Water will be conducting an actuarial valuation of the Halifax Water Employees' Pension Plan (the Plan) in Q1.
Rationale	• The Plan is a defined benefit pension plan regulated by the Pension Act. An actuarial valuation is required every three years.
Impact	• The actuarial valuation will provide an assessment of the pension obligations of the Plan, the assets currently available and the ongoing costs required to meet the pension obligations. Depending on results, employee and employer contribution rates may be affected.

Complete a cost-of-service and a general rate application

Goal(s)	• An updated cost-of-service manual and a general rate application will be filed with the NSUARB in the last quarter of 2021/22 with the expectation that a Hearing will be conducted by the end of September 2022.
Rationale	• Halifax Water continues to efficiently operate critical infrastructure in a region that continues to grow, has aging infrastructure, as well as increasingly stringent environmental compliance and protection regulations. • While utility essentially operates as a not-for-profit, it is not permitted to operate with a deficit and must recover costs from customers.

	• While the utility's costs continue to increase, its ability to recoup these costs from customers has not kept pace. As a result, Halifax Water is now at a critical point, where its financial position compels it to seek approval for rate increases. These rates can no longer be deferred.
Impact	• To maintain services and the financial health of Halifax Water, rates charged to customers must be adjusted to generate sufficient revenue to maintain the financial health of the utility. The process to change customer rates is governed and decided by the NSUARB.

Complete System Assessment Reports and Water Safety Plans for all drinking water systems

Goal(s)	• Halifax Water will complete System Assessment Reports and prepare first drafts of water safety plan risks for all drinking water systems by March 31, 2023.
Rationale	• System Assessment Reports are a regulatory compliance requirement. Halifax Water is replacing the five-year Water Quality Master Plan process with Water Safety Plans. These plans will: ○ Allow for assessing risks and vulnerabilities to both current and future compliance while tying into ERM. ○ Provide a continuous improvement approach to assessing water quality risks from source to tap that engages stakeholders across departments and at all levels. ○ Allow for proactive rather than reactive planning and response to water quality through risk-based decision making. ○ Tie water quality into asset management and capital planning processes.
Impact	• Provides a greater understanding of capacity restraints, source lake recovery, as well as aging asset/infrastructure management. This allows Halifax Water to adopt best practices and have greater control over capital management. For this to be a success, it requires buy-in from internal stakeholders that provide effective change management. It is important that the utility has the resource capacity to execute the program. Ongoing COVID-19 restrictions and potential delays could impact the timeline.

Secure Regulatory approval for:

Stormwater Service Expansion

Goal(s)	• Halifax Water will seek approval from the NSUARB to begin providing stormwater service to expanded areas on June 1, 2022. Pending approval, in 2022/23, the utility will conduct Phase 2 of its stakeholder engagement. This also includes gathering additional information regarding the assets, drainage, and areas of concern for customers within the new service areas. Pending approval by the NSUARB, the utility will launch service delivery.
Rationale	• HALIFAX Council approved the transfer of provincial roads to the municipality and directed that Halifax Water should assume ownership and responsibility for the stormwater infrastructure and provide stormwater service. It is important that Halifax Water fulfil the direction from HALIFAX Council and provide stormwater service to the new service areas in a manner that demonstrates they are receiving value. This is an opportunity to also raise broader awareness about the increasing importance of stormwater management.
Impact	• The activities being carried out in 2022/23 are critical to help mitigate the reputational risks posed by the transfer and help mitigate future operational and financial risks by providing improved information to plan service delivery and establish future rates to recover the cost of providing the service.

Secure Regulatory approval for:

Cogswell District Energy System (DES)

Goal(s)	• Halifax Water will request NSUARB approval for DES by Q1. • Complete initial cost-of-service and rate design models for the DES by Q4. • Begin development of DES corporate support systems by Q4. • Start planning for design approval and constructions of DES energy centre by Q4.
Rationale	• Through HALIFAX's HalifACT 2050, our Board, and the Investing in Canada Infrastructure Program (ICIP) funding agreement executed with Infrastructure Canada Fund Programs (INFC), Halifax Water has committed to develop the Cogswell DES. Halifax Water's goals and deliverables must align with HALIFAX's Cogswell Regional Development Plan (RDP) to ensure that the DES is built in parallel with the Cogswell RDP, and ready for operation as new

	developments (*i.e.* buildings) are completed in the Cogswell Regional Development Area (RDA). • The NSUARB has ruled that the DES will be regulated as a public utility. Halifax Council has approved a mandatory connection by-law for the Cogswell RDA.
Impact	• The Cogswell DES will help Halifax Water achieve it's environmental goals by contributing to the reduction of GHG emissions, to our CAP, and by demonstrating our commitment to sustainability.

Secure Regulatory approval for:

Burnside Operations Depot

Goal(s)	• Halifax Water will issue a Request for Proposals for the Burnside Depot in Q2. • Pending regulatory funding approvals, construction will start in Q4.
Rationale	• This project replaces four depots and supports Halifax Water's One Team, One Water strategy. This aligns the workforce in a more customer centric way and helps improve service effectiveness in the central and east regions.
Impact	• The timely delivery of the project is necessary for an effective transition of Halifax Water employees to a less siloed working approach. By effective delivery of the project, it will speed this transition and help mitigate the risk of cost escalation on a project of this scale. The current COVID-19 pandemic and its associated impact on supply chains, the labour market, and volatile construction costs, may pose risks to project estimates.

Secure Regulatory approval for:
Mill Cove Wastewater Treatment Facility (WWTF) Upgrade

Goal(s)	• Halifax Water will retain an engineering consultant to begin the process for the planned upgrade of the Mill Cove Wastewater Treatment Facility (WWTF) n Q3, with an anticipated start beginning in three to five years.
Rationale	• The Mill Cove WWTF treats wastewater from Bedford, Sackville, and nearby communities. The plant needs upgrades at an estimated cost of $90 million. This is necessary to maintain a good state of repair, ensure regulatory compliance and accommodate planned growth in the service area.

Impact	• This plan will reduce the potential for infrastructure failure, mitigate the risk of environmental non-compliance and generate capacity to accommodate growth.

Operational Excellence

We are committed to service, reliability, and quality for our customers. Focused on safely and efficiently building, operating, and maintaining our critical infrastructure, we ensure a more sustainable community.

Implement plan for expanded stormwater service in June 2022

Goal(s)	• Gather historical maintenance plans and field information on trouble spots from Nova Scotia Public Works (NSPW) in Q1. • Conduct operations and maintenance inspections on stormwater infrastructure within the new service boundary in Q1. • Generate operations and maintenance plans based on information gained from field condition assessments and information gathering from NSPW in Q1 and Q2. • Update Halifax Water's priority flood lists with assets from the new service boundary to ensure the utility is prepared to respond during storms in Q3. • Pending NSUARB approval, execution of work plans will commence at the proposed takeover date from Q2 to Q4. • Build capital renewal plans for fiscal 2023/24 in Q3-Q4.
Rationale	• A plan will help ensure appropriate levels of service are met for new customers in the new service boundary. By understanding the asset condition and maintenance requirements in advance, work planning can be completed to facilitate a preventative maintenance program that can be executed efficiently.
Impact	• By having an updated assessment of the transferred assets/infrastructure, Halifax Water can understand and manage the service needs of stormwater customers. To ensure the success of this transition, the utility will require timely and accurate information from NSPW and effective collaboration with HALIFAX to manage customer expectations. Without these relationships, Halifax Water will be challenged to meet customer demands.

Develop an operating plan for the Burnside Operations Depot

Goal(s)	• Progress the planning process in the West operations business units to bring increased cohesion to the delivery of service in the region in Q1. Based on this planning process, this can become the framework for the new Burnside Operations Center. • Implement a change management team to help guide the transition to a new organizational business model for the One Team, One Water approach by Q4. • Develop a new organizational structure through collaborative workshops with water and wastewater/stormwater operations in Q3-Q4. • Structure a coordination and planning group that will lead the development of work plans for execution across the operational workgroups in Q2-Q3.
Rationale	• Efficient service delivery under the One Team - One Water umbrella improves customer service, provides value, and allows for a more efficient use of available resources.
Impact	• It is essential that Halifax Water's infrastructure and capital assets are maintained to provide a LOS that customers expect. A failure to do so could alienate customers, increase the liability for property damage and result in regulatory non-compliance. To ensure this is avoided, Halifax Water must promote cultural changes within its teams, to avoid a territorial approach to resources and unproductive competitiveness.

Year 2: Water Supply Enhancement Program

Goal(s)	• Establish a program management office for the Water Supply Enhancement Program (WSEP) in Q1. • Sign off on clarifier pre-design in Q1. • Initiate Lake Major pumping station pre-design in Q4. • Initiate Pockwock clearwell pre-design in Q3.
Rationale	• The establishment of these milestones play a significant part in the overall WSEP. This is a key strategy for Halifax Water to mitigate the risk of lake recovery impacting water supply plant's ability to deliver high-quality water.

Impact	• The advancement of this program reduces risk of service interruption due to infrastructure failure and the risk of changes in the source water having an impact on the utility's ability to provide high-quality water and achieve regulatory compliance.

Incorporate Digital Water Strategy into Five Year Strategic Plan

Goal(s)	• Complete an updated three- to five-year IT Strategy, which focuses on digital transformation and intelligent water by Q3.
Rationale	• Utilities are rich in data that provide opportunities to improve customer service and its operations. By equipping staff with the tools to manage and analyze data, it provides Halifax Water with the ability to be more innovative. By using existing IT infrastructure and the data collected, it can provide information that is insightful in a cost-effective and sustainable way.
Impact	• This strategy document will ensure cyber security measures are more reflective of the utility's digital transformation and make sure that the utility's cyber security posture is maintained as the IT landscape evolves.

Optimize WSP & WWTF processes through Dalhousie research partnership

Goal(s)	• Pending the award of the Proposed Alliance Grant by Natural Sciences and Engineering Research Council (NSERC), Halifax Water will enter a contract and launch the next five-year research term by July 2022. • Halifax Water will work with Dalhousie to develop a plan to facilitate research required to execute the proposal, including procurement, installation, and commissioning of a pilot plant for wastewater by December 31, 2022.
Rationale	• In the fall of 2021, Dalhousie University submitted a five-year research proposal titled Partnership for Innovation in Climate Change Adaptation in Water & Wastewater Treatment to the NSERC Alliance grant program. This five-year program would mark the fourth five-year research partnership with Halifax Water; however, this program encompasses both water and wastewater where previous industrial research chairs were for drinking water alone.

	• Outcomes from the One Water research program on the drinking water side will feed directly into capital planning for the Water Supply Enhancement Program (WSEP), ensuring selection and design of robust advanced treatment technology to meet source water quality challenges and regulatory requirements for decades to come. • Outcomes from the wastewater research tasks aim to assist Halifax Water in meeting future compliance requirements of the Wastewater Systems Effluent Regulations (WSER) in a cost-effective manner. Through the exploration of UV LED technology, piloting and optimizing existing chemically enhanced primary treatment research may present innovative solutions to both reduce energy use and costs associated with present and future compliance.
Impact	• This research provides a better understanding of Halifax Water's capacity restraints, as well as source lake recovery, climate change and regulatory compliance. This partnership requires a funding decision by NSERC, and Halifax Water must ensure that its staff accept and agree to participate in and facilitate this research.

Implement corporate Enterprise Risk Management (ERM)

Goal(s)	• Develop operational risk management tools to be used by Halifax Water to manage project and operational risk by Q4. • Develop a comprehensive Business Continuity Plan (BCP) by Q4. • Finalize ERM framework document that will be used to provide guidance to internal and external stakeholders and ensure ERM is considered in all aspects of the organization in Q3/Q4. • Continue to work to ensure that ERM is integrated into all other business units throughout 2022/23. • Develop an internal audit process as an assurance tool in Q3.
Rationale	• ERM provides the risk management principles and processes required to assist Halifax Water in taking a proactive approach to managing principal risks. This approach will improve performance, encourage innovation, and support the overall achievement of the organization's strategic objectives. The ERM strategy will

	provide better communication throughout the organization. Over the long term, ERM can enhance enterprise resilience and the ability to respond to change that could impact performance and necessitate a shift in strategy.
Impact	• ERM provides risk management principles and processes that can be applied across the organization to identify, measure, assess, respond to, monitor, and report on organizational risks that affect Halifax Water's ability to meet its strategic initiatives. By developing operational risk management, it will help Halifax Water mitigate the capital management, asset management, and aging infrastructure risks. A comprehensive BCP will safeguard operations and ensure that Halifax Water continues to offer services in the event of an emergency. In addition, an internal audit process will support the entire ERM program by addressing assurance, thus, assisting in the mitigation of all organizational risks. • Lack of resources and change management may impact Halifax Water's ability to achieve these goals in 2022/23.

Implement ERP project to improve operational efficiency

Goal(s)	• Complete the transition of Halifax Water's Enterprise Resource Planning (ERP) system to Cayenta in Q3.
Rationale	• An ERP is required to effectively manage the utility, and Halifax Water was required to transition from its current ERP system, SAP. Through a rigorous procurement process, Cayenta was selected as a cost-effective alternative. As the utility's new ERP system, Cayenta will streamline many financial and customer relationship management processes and will provide for more effective reporting.
Impact	• The ERP will support the financial management and the continued financial health of the utility. The ERP is a significant, organization-wide implementation and will require support from all parts of the organization. Implementations of this scale are complex and may be affected by system technical challenges, allocation of staff resources, and the ability of the organization to effectively manage the change.

Maintaining a high level of day-to-day service

Goal(s)	• Complete LOS work through the Asset Management Plan (AMP) and with input from stakeholders. The AMP is to be presented to the Halifax Water Board by the end of Q4. • Review the customer complaint and dispute resolution processes with internal stakeholders and the new Dispute Resolution Officer in Q1. • Review measures to monitor and report on the volume of work handled by all workgroups by the end of Q3, as part of documenting the current volume of activity and support future workforce planning to maintain day-to-day service.
Rationale	• Halifax Water is focused on resolving as many customer concerns as possible. When a resolution is not possible, or the customer is dissatisfied, the utility requires a process to escalate the complaint in an effective and meaningful way. Customers must have a clear understanding of how service is provided, what it costs, and the LOS they can expect. To achieve this, Halifax Water must seek clarity on the LOS customers demand, compared to the current service levels and whether the utility is achieving these.
Impact	• These activities will help Halifax Water better manage customer expectations and deliver service. Staffing capacity and the need to focus on more urgent initiatives may prevent achieving this work.

BUDGET SUMMARY

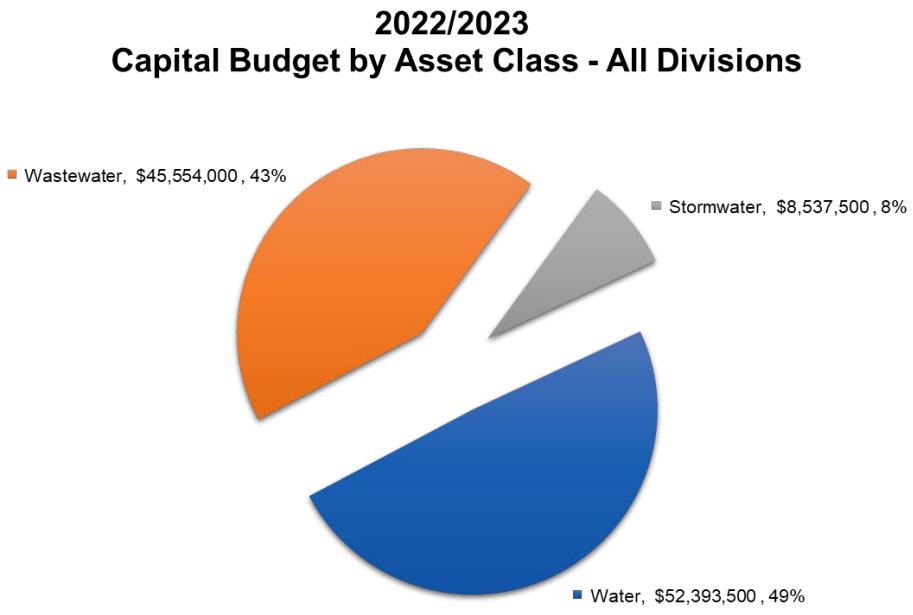
Capital Budget

Halifax Water's 2022/23 Capital Budget at a total value of $106,485,000 and detailed information on the capital budget is provided in Appendix B.

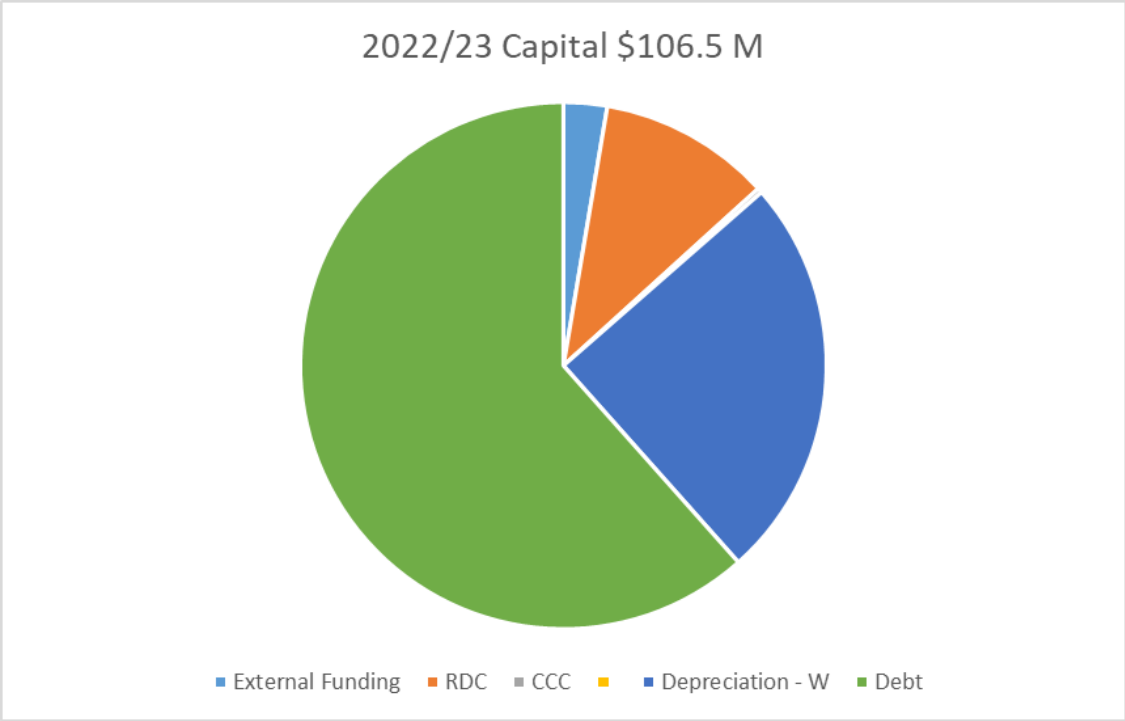
Halifax Water's 2019 IRP identifies a 30-year capital investment plan valued at $2.7 billion (net present value), and a requirement to achieve an average level of spend of $130 million per year. In relation to the IRP, the capital budget program focuses on providing required infrastructure for asset renewal, regulatory compliance, and growth.

This year's capital budget also recognizes the significant challenge Halifax Water faces in increasing a capital budget that was approximately $30 million just ten years ago to an average IRP spend of $130 million per year, including some years in excess of $200 million. Staff have reviewed Halifax Water's capacity to deliver our capital budget and determined significant changes are required in the areas of human resources, tools, and business processes. Accordingly, this year's proposed capital budget has been reduced compared to last year's budget of $126 million, and from the planned amount for this year in the most recent five-year capital budget of $153 million. The proposed budget of $106,485,000 is intended to achieve critical projects with well advanced planning while respecting the current capacity to deliver, augmented by some human resource additions.

The funding plan for the capital budget is comprised of the following funding sources; depreciation, debt, regional development charge reserve, capital cost contribution, Federal/Provincial infrastructure funding, HALIFAX cost sharing and energy rebates.



The funding plan for the proposed Capital Budget is shown below:



Water		**Wastewater**		**Stormwater**	
Depreciation	9,279,000	Depreciation	15,906,000	Depreciation	1,281,000
Debt	33,620,000	Debt	24,807,000	Debt	7,147,000
RDC	9,041,000	RDC	2,237,000	External Funding	110,000
External Funding	453,000	CCC	315,000		$8,538,000
	$ 52,393,000	External Funding HRM	2,289,000		
			$45,554,000		
Total Capital Funding	**$ 106,485,000**				

Operating Budget

The operating budget for 2022/23 reflects a projected deficit of $10.9 million and requirements to maintain current LOS and is based on rates approved by the NSUARB. The water rates were effective April 1, 2016, stormwater rates were effective July 1, 2017, base charges for wastewater effective April 1, 2016, while approved wastewater consumption rates by the NSUARB were effective April 1, 2021.

The main cost drivers of Halifax Water's operating budget are salaries and wages, energy, chemicals, depreciation, and debt servicing. Operating expenses are proposed to increase by $3.4 million or 2.7% compared to the budget for last year. Full details of the operating budget are provided in Appendix C.

Operating Budget Summary (in thousands)

	Actual 2020/21	Approved Budget 2021/22	Proposed Budget 2022/23	Change
Operating revenues	$ 136,569	$ 150,466	$ 152,765	$ 2,298
Operating expenditures	113,689	125,379	128,788	3,409
Earnings from operations	22,880	25,087	23,977	(1,110)
Financial and other revenues	963	722	733	11
Financial and other expenditures	33,726	37,461	35,598	(1,863)
Deficit	$ (9,883)	$ (11,651)	$ (10,888)	$ 764

All three services – water, wastewater and stormwater are currently operating at a deficit and Halifax Water will be making an application in 2022/23 to the NSUARB to adjust rates for services to reflect the current costs of providing service. As noted above, the majority of Halifax Water's rates are based on operating costs from several years ago and do not reflect current costs or recognize general inflation.

Operating Budget Key Assumptions

Revenue budgets have been developed based on the current rates for service. Net consumption is projected to increase by 1% in 2022/23 as decreasing consumption from existing customers is projected to be less than consumption increases caused by growth. Halifax Water is budgeting for 680 new customers connections, an increase from 638 in prior years.

The Consumer Price Index (CPI) in Halifax is currently running at 3.68%. The increase in Halifax Water's total operating expenses is less than this. Specific assumptions regarding some of Halifax Water's most significant expenses are shown below.

Chemicals	5%
Electricity	3%
Furnace oil	15%
Natural gas	15%
Salaries	2.25-3%**

** Halifax Water has three employee groups governed by 2 collective agreements and 1 compensation policy. This range provides allowance for step increases as employees move through various salary bands.

The budgets for depreciation expense, and non-operating expenses such as debt servicing and grant in lieu of taxes paid to the municipality are developed based on capital spending and additions to utility plant in service.

PERFORMANCE MEASUREMENT

At the end of the 2022/23 fiscal year, Halifax Water's overall performance will be assessed against the Corporate Balanced Scorecard (CBS). Halifax Water has been utilizing a CBS to measure utility performance since 2001. Each year the Halifax Water Board sets organizational indicators and reviews performance results. The CBS targets for 2022/23 will be presented for approval at the March 2022 meeting of the Halifax Water Board.

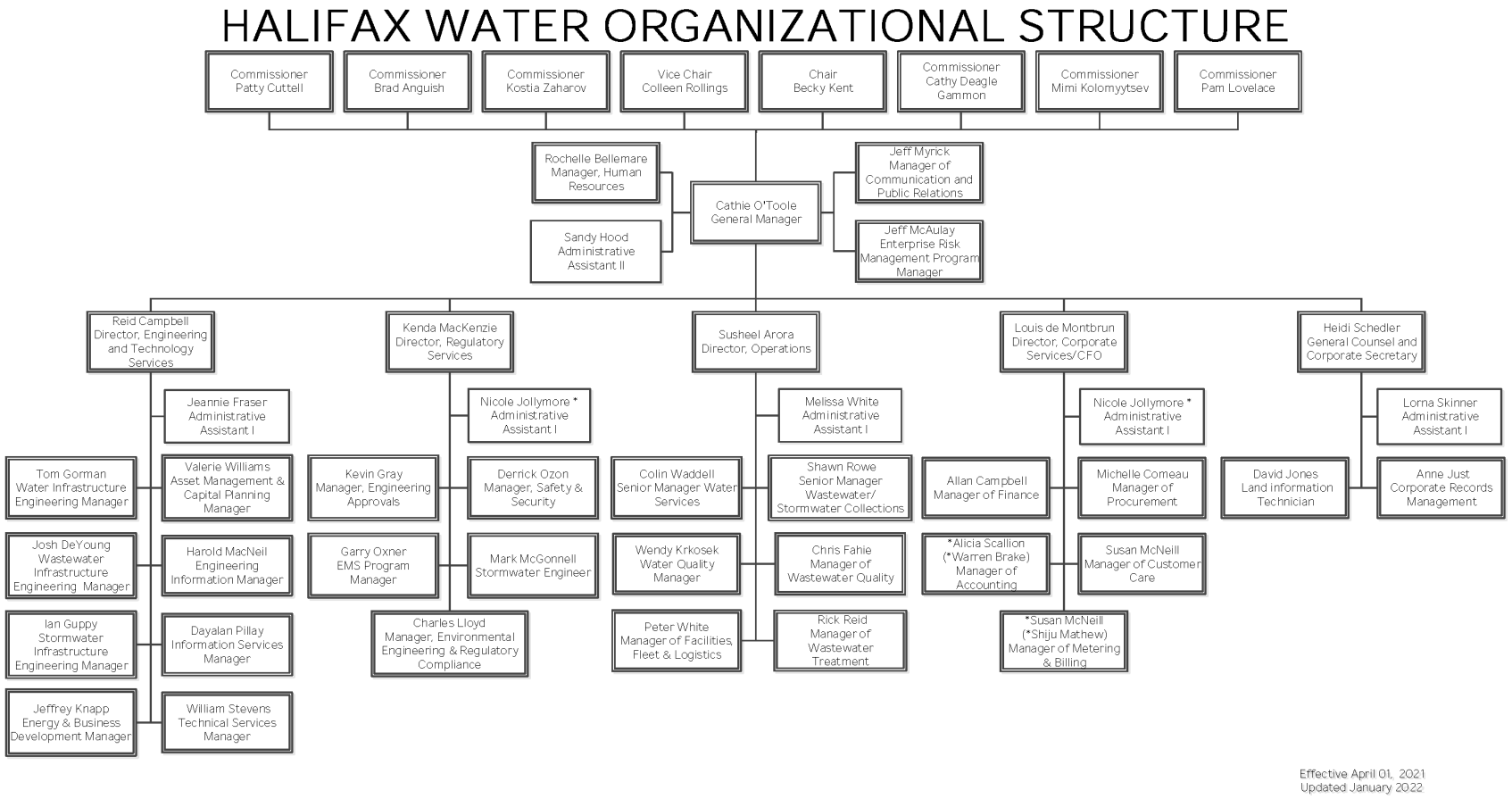
There are eight Critical Success Factors (CSFs) derived from Halifax Water's vision statement and under each of the CSFs, there are organizational indicators to track performance and allow for the establishment of targets. This year the eight critical success factors will be organized based on the four pillars:

People	**Health, Safety and Environment**
Employee satisfaction survey result Average number of days absenteeism % of grievances resulting in arbitration % of jobs filled with internal candidates Customer satisfaction about water quality - % from customer survey Customer satisfaction with service - % from customer survey	Average score on internal safety audits Lost time accidents - # of accidents resulting in lost time per 100 employees Safe driving - # of traffic accidents per 1,000,000 km driven Training - # of employees trained or re-certified before due date % of completed safety talks # of IC&I properties inspected by Pollution Prevention each year Energy management kwh/m^3 reduction associated with capital projects Adherence with Water Quality Master Plan - % of sites achieving targets Bacteriological tests - % free from total coliform Bio-solids residual handling - % of sludge meeting bio-solids concentration targets

Financial and Regulatory Accountability	**Operational Excellence**
Operating expense/revenue ratio percentage Annual cost per customer connection – water Annual cost per customer connection – wastewater Capital budget expenditures - % of budget spent by end of fiscal-year Department of Labour, Skills (DLS&I) and Immigration compliance - # of incidents with written compliance orders % of public health and environmental regulatory infractions resulting in an environmental warning report, summary offense ticket, ministerial order, or prosecution % of WWTFs complying with NSECC approval permits	Water leakage control – target leakage allowance of 160 litres per service connection per day I&I reduction - # of inspections on private property for discharge of stormwater into the wastewater system Peak flow reduction from wet weather management capital projects Hours of unplanned outages in GIS and Cityworks Water service outages - # of connection hours/1000 customers Wastewater service outages – # of connection hours/1000 customers Average speed of answer – % of calls answered within 20 seconds

Appendix A: Organizational Structure and Service Overview

ORGANIZATIONAL STRUCTURE



STRAIGHT from the SOURCE

Halifax Water

SERVICE OVERVIEW

Operations

The Operations Department provides water, wastewater and stormwater service and activities are organized functionally in a way that ensures that respective services are managed as systems.

Water Services

- *Source Water Protection:* responsible for managing and protecting watershed land, developing and maintaining source water plans, enforcement of Protected Water Areas 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*: responsible for water quality planning, water quality monitoring, 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*: responsible for operation and maintenance of three large water supply plants (Pockwock, Lake Major and Bennery Lake), six small systems, six dams, two emergency water supplies and 35 chlorine monitoring devices and re-chlorination stations.
- *Distribution System Operations*: responsible for operation and maintenance of the water distribution and transmission systems. The system is managed according to three geographic regions with responsibility for over 1563 km of transmission and distribution mains, 8450 fire hydrants, 85,500 service connections, 141 pressure control/flow metering facilities, 21 pumping stations, 16,000 valves and 16 water storage facilities. This also includes responding to third party requests for buried infrastructure locates.

Wastewater Services

The Wastewater and Stormwater Services division activities include operating and maintaining municipal systems from “drains back to the source again.” In this regard, the Wastewater and Stormwater Services division has a mandate to protect the environment while providing essential collection and treatment services to its customers. These essential services are delivered in sections that are responsible for both stormwater and wastewater activities in three regions and 14 treatment facilities. The supervisors and the field crews carry out both wastewater and stormwater related duties.

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

- *Wastewater Treatment Facility Operations:* responsible for operation and maintenance of 14 WWTFs and associated infrastructure, regulatory reporting, and implementing and coordinating capital upgrades with other Halifax Water departments. As per the WSER, two

plants are classified as very large, three are large, two are medium and nine are small capacity. The department also operates four additional small treatment facilities under contract from HALIFAX and the province.

- *Biosolids Processing:* responsible for 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. The BPF, located at the Aerotech Industrial Park, produces a soil amendment for beneficial use in agriculture.
- *Collection System Operations:* responsible for 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 1,425 km of collection pipes, 164 pump stations, 21 combined sewer overflow facilities, and 82,464 service connections.
- *Septage Treatment Services:* This is an unregulated activity for Halifax Water, but it provides an essential service to residents who do not have a centralized wastewater service. The septage from septic hauling companies who service these users was accepted at strategic locations within the core sewer service area and at the Aerotech WWTF. With the completion of the upgrade of Aerotech WWTF in 2019, most of the septage has been diverted to the Aerotech WWTF from the core service area.
- *Facilities, Fleet & Logistics Services:* responsible to supply, maintain and repair approximately 270 pieces of mobile equipment and vehicles ranging from trailers and small utility service vehicles to large excavation, construction, and transportation equipment. Replacement of vehicles and equipment on a life cycle costing basis and vehicles records management and regulatory compliance. This section also operates and maintains corporate facilities at the Cowie Hill campus and provides logistical and services support to operations and treatment facilities to facilitate efficient operations.

Stormwater Services

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

- *Collection System Operations:* provides operation, repair and maintenance of the stormwater collection and trunk sewer system. The system is managed by shared crews within the three geographic regions with responsibility for approximately 900 km of stormwater collection pipes, 46 stormwater retention facilities, over 600 km of ditches, 2,495 cross culverts and 15,061 driveway culverts. This section provides proactive maintenance of the pipes, ditches, and other systems with a goal to ensure uninterrupted flow within Halifax Water infrastructure. Staff also replace a driveway and cross culverts on a priority basis to manage the infrastructure with sound asset management practices.

- *Service Review:* Operations provide support to the Stormwater Engineer within the Regulatory Services department, and allocates resources to drainage investigations, stormwater billing exemption requests, and operations support. Drainage investigations may be triggered by a customer inquiry on private property or an operational issue on Halifax Water owned infrastructure. The Stormwater Engineer reviews the drainage issues and renders a finding which may involve an operational fix or a capital improvement. Complaints stemming from stormwater billing are vetted through the Stormwater Engineer.

Engineering and Technology Services

The Engineering & Technology Services (ETS) 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. It is also responsible all of Halifax Water's digital infrastructure services including information management, geographic information systems and operational technology.

The ETS Department has six core areas of responsibility with eight specific operational sections delivering programs.

- *Asset Management*: responsible for development of the AM program; including the overall strategy, inventories, condition and performance assessments, and the development and delivery of annual AMP. The section is also responsible for modelling and flow monitoring, long-term infrastructure master planning (including implementation of the IRP, and the development of the five-year and one-year capital budget).
- *Infrastructure Engineering:* contains four sections that are responsible for the design, construction and project management for water, wastewater, and stormwater capital projects, respectively. These four sections also provide support for capital project prioritization, master planning and asset management relating to the core infrastructure.
- *Energy Efficiency*: responsible for the provision of engineering services related to energy management and energy efficiency of water, wastewater, and stormwater infrastructure. This section is responsible for the development and implementation of two exciting new corporate initiatives. The first, the Cogswell District Energy System, is planned as a new regulated business unit to provide energy to proposed new buildings within HALIFAX's Cogswell RDA based on energy extracted from the warm wastewater effluent that discharges from Halifax Water's Halifax WWTF. The second, the new BPF, is being strategically developed to efficiently manage the conversion of the utility's wastewater sludge into commercially viable soil amendment product and recoverable energy.
- *Engineering Information:* responsible for the corporate GIS, including the maintenance and distribution of all record information. The section is also responsible for ongoing 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.

- *Information Services (IS):* responsible for 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 (including desktops, laptops, monitors, printers, and servers), corporate desktop software, and updating and delivery of the information technology(IT) Strategic Plan including all IT project delivery services. The IS section is the first line of support for all IT related problems or requirements.
- *Technical Services:* responsible for 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.

Regulatory Services

The Regulatory Services Department continues to support the utility through the delivery of programs such as Environmental Engineering, Engineering Approvals, Regulatory Compliance, Safety and Security, Stormwater Engineering and EMS.

- *Environmental Engineering:* responsible for two key programs, Pollution Prevention (P2) and the private side I&I reduction. The section also provides support for updating NSECC permits to operate and to withdraw water and oversee projects related to contaminated sites and impacts to Halifax Water's infrastructure.
    - *Pollution Prevention:* responsible for promoting compliance of waste discharges with the Rules and Regulations, through education and inspections.
    - *Inflow and Infiltration* assists the WWMP in locating and addressing private side sources of I&I.
    - *Regulatory Compliance:* responsible for 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 NSECC. Similar sampling is completed for wastewater effluent parameters for compliance with permits issued by NSECC, consistent with federal regulations. The group is also tasked with compiling and submitting reports associated with the sampling results to NSECC. Regulatory Compliance is completing work with the Water Quality Management section to implement new permit tracking and data management and reporting software, Klir® to replace WaterTrax® as part of the IT Strategic Program.
    - *NSECC Permits:* coordinates permit renewals and/or amendments.
- *Engineering Approvals:* The Engineering Approvals group is focused on adherence to the Halifax Water Design Specifications, the Supplementary Standard Specification, and the Halifax Water Regulations with respect to connections to, and expansions of, the Halifax Water system. In addition, the group oversees the administration of the Backflow Prevention Program which provides a layer of protection to the water distribution system from potential contamination events (cross connections) from medium to high-risk

customers. The group also administers new service connections including the inspection of the new services and renewals and the administration of RDCs and CCCs.

- *Safety & Security:* Provides the overall support and delivery of the Halifax Water's safety program, as well as oversight of the security systems and programs to protect Halifax Water's critical infrastructure.
- *Stormwater Engineering:* Conducts drainage investigations, stormwater billing exemption requests, and operations support. Drainage investigations may be triggered by a customer inquiry on private property or an operational issue on Halifax Water owned infrastructure. The Stormwater Engineering team reviews the drainage issues and renders a position which may involve an operational fix or a capital improvement. Complaints stemming from stormwater billing are vetted through the Stormwater Engineer and a decision is provided to the customer.
- *Environmental Management System (EMS)***:** a system of procedures, records, and processes to manage environmental issues and assist with regulatory compliance. It also makes day-to-day operations more sustainable and engages employees in these operational activities. The EMS program can be audited against ISO 14001 standards, and if found to comply, receives a certification through ISO. The ISO standard places a focus on organizational leadership and identification of risks and the associated influences, both internal and external to an organization.

Corporate Services

Corporate Services consists of five sections, with service to internal and external customers.

- *Finance:* responsible for development of operating budgets, funding plans for the capital budget, rate applications and financial modeling for business plans. This group assists in preparing the capital budgets and confirms the availability of funding sources. The group is responsible for forecasting revenues and expenditures, including associated trend analysis, administering the pension plan, internal control testing, and quality assurance activities around financial transactions including payroll.
- *Accounting:* responsible for timely and accurate financial reporting, financial accounting, fixed asset accounting, financial analyses, and preparing the financial statements. This group is also responsible for revenue; budgeting and forecasting; predicting cash flows; developing and implementing accounting procedures; internal controls; managing the billing and collection of non-customer charges; and coordinating and supporting the annual external financial statement audit. Accounting also assists in preparing the capital budgets.
- *Procurement:* responsible for planning and delivering procurement services to the organization ensuring compliance with corporate policies, legislation, and trade agreements. This section develops and implements reporting and monitoring systems, programs and procedures for inventory and procurement. Procurement also supports and guides internal departments in the acquisition of goods, services, and construction to meet Halifax Water’s objectives and capital programs.

- *Customer Care*: responsible for managing customer contacts, establishing corporate customer service standards, goals, and objectives, and coordinating the improvement of business processes in Customer Care and other departments.
- *Metering and Billing*: responsible for installing, maintaining, reading, sampling, and testing meters, establishing standards, and billing customers for Water, Wastewater and Stormwater Services in a timely and accurate manner.

Administration

- *General Manager's Office*: responsible for overall administration of the utility. Some initiatives led by the General Manager's Office include governance, business planning, public and stakeholder relationships, and employee relations. Communications, Legal Services and Human Resources fall directly under the General Manager's Office.
- *Communications*: responsible for external and internal communications, maintaining the internet and intranet sites, media relations, social media, and providing support to operations and capital delivery to ensure the public is kept informed of significant projects, service disruptions, and initiatives.
- *Legal Services*: includes the legal function, corporate records management, FOIPOP administration as well as land administration. The General Counsel acts as the Corporate Secretary to the Halifax Water Board and helps ensure that board governance processes function smoothly.
- *Human Resources*: 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.

Unregulated Business

Halifax Water conducts some lines of business that are ancillary to the core water, wastewater, and stormwater services. These activities constitute approximately 1% of the utility's business and include leasing of land for telecommunications, cell phone and radio towers, and some energy related initiatives such as leasing land for wind turbines and generating electricity through in-line turbines in the water system. The most material lines of un-regulated business are treatment of septage from waste haulers dealing with private septic systems, and treatment of airline effluent. Halifax Water also can provide some services such as contract operations, consulting or leak detecting on a fee for service bases. Currently, Halifax Water is providing some consulting services to the Atlantic First Nations Water Authority. Unregulated business is conducted for the benefit of the regulated rate base.

Appendix B: 2022/23 Capital Budget

HALIFAX WATER

Capital Budget 2022/23

Summary

Asset Category	Project Costs
Water - Land -- T O T A L	$240,000
Water - Transmission -- T O T A L	$15,999,000
Water - Distribution -- T O T A L	$8,490,000
Water - Structures -- T O T A L	$11,773,000
Water - Treatment Facilities -- T O T A L	$3,165,000
Water - Energy -- T O T A L	$200,000
Water - Security -- T O T A L	$125,000
Water - Equipment -- T O T A L	$135,000
Water - Corporate Projects - T O T A L	$12,266,500
TOTAL - Water	$52,393,500

Wastewater - Collection System -- T O T A L	$11,823,000
Wastewater - Forcemains -- T O T A L	$820,000
Wastewater Structures -- T O T A L	$8,620,000
Wastewater - Treatment Facility -- T O T A L	$10,872,000
Wastewater - Energy -- T O T A L	$600,000
Wastewater - Security -- T O T A L	$275,000
Wastewater - Equipment -- T O T A L	$157,000
Wastewater - Corporate Projects -- T O T A L	$12,387,000
TOTAL - Wastewater	$45,554,000

HALIFAX WATER

Capital Budget 2022/23

Summary

Asset Category	Project Costs
Stormwater - Pipes -- T O T A L	$3,406,000
Stormwater - Culverts -- T O T A L	$2,366,000
Stormwater - Corporate Projects -- T O T A L	$2,765,500
TOTAL - Stormwater	$8,537,500
G R A N D T O T A L	$106,485,000

HALIFAX WATER

Capital Budget 2022/23

Summary

Asset Category	Project Costs
Stormwater - Pipes -- T O T A L	$3,406,000
Stormwater - Culverts -- T O T A L	$2,366,000
Stormwater - Corporate Projects -- T O T A L	$2,765,500
TOTAL - Stormwater	$8,537,500
G R A N D T O T A L	$106,485,000

HALIFAX WATER

Capital Budget 2022/23

Water

Project Number	Project Name	Project Cost
	Water - Land	
3.033	Watershed Land Acquisition	$100,000
3.656	Lake Major Road - Safety and Grading Improvements	$140,000
	Water - Land -- T O T A L	**$240,000**
	Water - Transmission	
3.042	Critical Valve Replacement Program	$200,000
3.587	Prince Albert Road Transmission Main Replacement	$100,000
3.554	North End Feeder Replacement - Design	$200,000
3.571	Highway 118 Crossing - Shubie Park to Dartmouth Crossing	$120,000
3.631	Transmission Main Upgrades - Churchill Drive Corridor	$9,420,000
3.293	Peninsula Low North Transmission Main Replacement - Maritime Life and CN Crossing	$75,000
3.553	Peninsula Intermediate Looping - Quinpool Rd to Young Street (Dublin St 2022)	$1,622,000
3.679	Extension of Fall River to Bennery Lake - Concept Design Work	$200,000
3.399	Cogswell Interchange - Water Transmission Main Realignments	$2,530,000
3.657	Bedford to Burnside Transmission Main Phase 1 - Road Crossings/Casings Culvert Extension	$880,000
3.550	Bedford to Burnside Transmission Main Phase 2 - Rock Trench Preparations	$420,000
3.045	Bedford West CCC - Various Phases	$30,000
3.261	Lakeside Timberlea CCC	$7,000
3.343	Northgate Oversizing	$145,000
3.232	MacIntosh Estates Phase 1 Oversizing	$50,000
	Water - Transmission -- T O T A L	**$15,999,000**
	Water - Distribution	
3.022	Water Distribution - Main Renewal Program	$4,900,000
3.661	Watermain Rehabilitation Structural Lining Program	$75,000
3.067	~ Valves Renewals	$200,000
3.068	~ Hydrants Renewals	$75,000
3.069	~ Service Lines Renewals	$100,000
3.390	Lead Service Line Replacement Program	$2,000,000
3.294	Automated Flushing Program	$20,000
3.296	Water Sampling Station Relaocation Program	$30,000
3.652	Jubilee Road CN Bridge Replacement - Watermain	$400,000
3.670	Standardization of Hydrant Front Pumper Nozzles	$175,000

HALIFAX WATER

Capital Budget 2022/23

Water

Project Number	Project Name	Project Cost
3.584	Silversands WSP - Linear Main Extension Cow Bay Road	$150,000
3.649	Silver Sands Water Meter Installation	$250,000
3.687	Robie Control Chamber - Peninsula High PRV Installation	$85,000
3.688	Little Salmon River Bridge Watermain Replacement	$30,000
	Water - Distribution -- T O T A L	**$8,490,000**

HALIFAX WATER

Capital Budget 2022/23

Water

Project Number	Project Name	Project Cost
	Water - Structures	
3.601	PRV Valve Replacement Program	$100,000
3.602	PRV Chamber - Electrical Panel Replacement Program	$40,000
3.603	DMA - Meter Replacement Program	$50,000
3.263	District Metered Areas (DMA) Program	$100,000
3.455	Reservoir Mixing and Residuals Management Upgrade Program	$300,000
3.623	Booster Station Building Envelope	$30,000
3.606	Highway #7 Booster Station - Fire Pump Replacement	$100,000
3.662	Fairview Clayton High Pressure Management Upgrades	$150,000
3.663	Peninsula High Zone Pressure Management Upgrades	$27,000
3.664	Robie 2 PRV Chamber Valve Replacement	$25,000
3.667	Dartmouth - New Meter Replacement	$110,000
3.358	Blue Mountain Meter Replacement	$20,000
3.672	Pinehill Drive PRV Chamber Replacement	$445,000
3.665	Removal of Underground Fuel Tanks - Leiblin, Parkdale and Rockmanor Booster Stations	$50,000
3.681	Lake Lemont Back Up Supply Facility - Hazardous Material Assessment and Removal	$90,000
3.477	Aerotech Booster Station Capital Upgrades	$200,000
3.607	Condition Assessment - Miscellaneous Structures	$75,000
3.583	PRV Chamber - Gallery Crescent - Sackville	$295,000
3.528	Beaver Bank Booster Station - Pump Upgrade	$250,000
3.590	Larry Uteck PRV Chamber - CSE Retrofit	$60,000
3.591	Starboard Drive PRV Chamber - CSE Retrofit	$60,000
3.592	Mount Edward PRV - CSE Retrofit	$66,000
3.288	Akerley Reservoir Rehabilitation	$7,430,000
3.453	Geizer 123 Reservoir Rehabilitation	$200,000
3.641	Dam Safety Review - Chain Lake Dam - Capital Work	$150,000
3.642	Dam Safety Review - Pockwock Lake Dam - Capital Work	$950,000
3.640	Dam Safety Review - Capital Implementation Program	$150,000
3.110	Mount Edward Gunite Reservoir Rehabiliation	$150,000
3.605	Silverside Pumping Station Upgrades Construction	$100,000
	Water - Structures -- T O T A L	**$11,773,000**
	Water - Treatment Facilities	

HALIFAX WATER

Capital Budget 2022/23

Water

Project Number	Project Name	Project Cost
	J D Kline Water Supply Plant:	
3.604	JD Kline WSP - Pretreatment and Clarification - WSEP JDK-800.10	$604,000
3.633	Program Management Fess and Expenses - WSEP JDK-MAJ	$479,000
3.673	JD Kline WSP - Purchase Fluorescence Excitation Emission Matrix (FEEM) Analyzer	$60,000
3.680	JD Kline WSP - Lime System Renewal	$60,000
3.671	JD Kline WSP - Install In-Line Flow Cytometer	$150,000
	Lake Major Water Supply Plant:	
3.618	Lake Major WSP - Clarification/Pretreatment - WSEP MAJ 800.15	$500,000
3.158	Lake Major WSP - HVAC at the Low Lift Pumping Station	$36,000
	Bennery Lake Water Supply Plant:	
3.692	Bennery Lake WSP - Lagoon Maintenance Study and Improvements	$50,000
	Non-Urban Core WSP	
3.678	Groundwater Assessment - New Water Source for Middle Musquodoboit System	$100,000
3.685	Collins Park WSP - New Chemical Storage Building	$26,000
3.669	Purchase Algae Particle Counter	$200,000
3.674	Pockwock Lake and Lake Major Stream gaging	$250,000
3.682	Purchase Mobile Sonde Equipment	$250,000
3.690	WSP Plants - Instrumentation and Controls Equipment Program	$100,000
3.691	Pump and Equipment Overhauls Program for WSPs	$200,000
3.694	Bayers Diversion Site Improvements	$100,000
	Water - Treatment Facilities -- T O T A L	**$3,165,000**
	Water - Energy	
3.635	Energy Management Capital Program (Water)	$100,000
3.107	Chamber HVAC Retro-Commissioning Program	$100,000
	Water - Energy -- T O T A L	**$200,000**
	Water - Security	
4.009	Security Upgrade Program	$50,000
3.683	Safety Equipment (Water)	$75,000
	Water - Security -- T O T A L	**$125,000**
	Water - Equipment	
3.101	Miscellaneous Equipment Replacement	$50,000
3.689	Valve Maintenance Trailer - Purchase	$85,000

HALIFAX WATER

Capital Budget 2022/23

Water

Project Number	Project Name	Project Cost
	Water - Equipment -- T O T A L	$135,000
	Water - Corporate Projects - T O T A L	$12,266,500
	GRAND TOTAL - WATER	**$52,393,500**

HALIFAX WATER

Capital Budget 2022/23

Wastewater

Project Number	Project Name	Project Cost
	Wastewater - Collection System	
2.168	Wastewater System - Trenchless Rehabilitation Program	$2,410,000
2.839	Eastern Passage Gravity Pressure Sewer	$300,000
2.107	Pier A Pumping Station - Gravity Maintenance Bypass	$125,000
2.103	Jubilee Road CN Bridge Replacement - Wastewater	$900,000
2.357	Manhole Renewals WW	$60,000
2.358	Lateral Replacements WW (non-tree roots)	$1,785,000
2.563	Lateral Replacements WW (tree roots)	$570,000
2.223	Wet Weather Management Program	$350,000
2.074	Bedford West Collection System CCC	$25,000
	Integrated Projects - HRM	
2.052	Integrated Wastewater Projects - Program	$1,420,000
2.692	Cogswell Redevelopment - Sewer Relocation	$1,070,000
2.948	Meadowlands PS Elimination	$90,000
2.356	Auburn Avenue PS Elimination	$60,000
2.946	SSP - Bayers Road Pocket - Engineering Analysis	$500,000
2.675	Bayers Road Phase 1 - Sewer Separation	$55,000
2.835	LoWSCA: Canal Street Separation	$184,000
2.982	Young Street Pocket - Sewer Separation - Route to Harbour	$900,000
2.830	Eastern Passage RDII Reduction Program FMZ24	$55,000
2.831	Eastern Passage RDII Reduction Program FMZ37	$64,000
2.832	Mill Cove RDII Reduction Program FMZ07 & FMZ40	$475,000
2.833	Mill Cove RDII Reduction Program FMZ10	$50,000
2.834	Ellenvale area RDIi Reduction Program	$80,000
2.585	Gottingen Cogswell: Linear Upgrade - Gottingen & Cogswell Area 2_GOT_G2	$295,000
	Wastewater - Collection System -- T O T A L	**$11,823,000**
	Wastewater - Forcemains	
2.887	Majestic Avenue Forcemain Replacement & Twinning	$200,000
2.945	390 Waverley Road Forcemain Upgrades	$420,000
2.993	Dingle FM Replacement & Twinning	$75,000
2.102	Bissett Pumping Station - Force Main Section Replacement	$125,000
	Wastewater - Forcemains -- T O T A L	**$820,000**

HALIFAX WATER

Capital Budget 2022/23

Wastewater

Project Number	Project Name	Project Cost
	Wastewater - Structures	
2.42	Emergency Pumping Station Pump replacements	$250,000
2.442	Wastewater Pumping Station Component Replacement Program - West Region	$200,000
2.443	Wastewater Pumping Station Component Replacement Program - East Region	$200,000
2.444	Wastewater Pumping Station Component Replacement Program - Central Region	$250,000
2.920	Herring Cove Pumping Station - Pump Replacements	$900,000
2.1005	Roach's Pond Pumping Station - Storage Tank Condition Assessment	$65,000
2.1009	Sackville Street CSO - Screen Rebuild	$110,000
2.101	Upper Water Street CSO - Screen Rebuild	$110,000
2.101	CSO Screens - PLC and HMI Upgrades	$260,000
2.1013	Harbour Solutions Pumping Stations - PLC and HMI Upgrades	$355,000
2.1014	Main Street Pumping Station (Golf View Drive) Upgrade	$200,000
2.459	William's Lake PS Rehabilition	$440,000
2.66	Bissett PS Component Upgrade	$4,000,000
2.665	CSO Upgrade Program	$300,000
2.1004	Pier A Pumping Station VFD Replacement	$120,000
2.74	Duffus Pumping Station Replacement and CSO Modification	$210,000
2.1006	Duffus Street Pumping Station - Pump Replacement	$135,000
2.819	Pumping Station Oil Tank Replacements	$60,000
2.654	PS Control Panel / Electrical Replacement	$100,000
2.827	Wastewater Pumping Station Generator Plug/Switch Installations	$105,000
2.005	Autoport Pleasant Street PS Replacement	$250,000
	Wastewater Structures -- T O T A L	**$8,620,000**
	Wastewater - Treatment Facility	
2.056	Plant Optimization Program	$125,000
2.522	Emergency Wastewater Treatment Facility equipment replacements	$500,000

HALIFAX WATER

Capital Budget 2022/23

Wastewater

Project Number	Project Name	Project Cost
	Halifax Wastewater Treatment Facility:	
2.765	Raw Water Pump Refurbishment	$55,000
2.773	Industrial Water System - Replacement	$205,000
2.776	Sludge Dewatering - Fournier Press Upgrades	$1,900,000
2.952	Replace Hydraulic System Controls	$120,000
2.953	Wet Well - Stop Log Lifting System	$50,000
2.954	Raw Water Pumps - VFD Replacement	$120,000
2.955	VFD Replacement Program	$100,000
2.956	Chemical Storage Area - Epoxy Floor	$50,000
2.957	Fibre Optic System Upgrade	$15,000
	Dartmouth Wastewater Treatment Facility:	
2.871	SS Pipe Work Replacement Program	$200,000
2.790	Fournier Press - Sludge Dewatering Upgrade	$100,000
2.959	UV Disinfection System - Replace Hydraulic System Controls	$30,000
2.960	AHU Intake Heating Coil Replacement	$55,000
2.961	AHU Fan Timing Belts	$30,000
2.962	Garage Door Replacement	$50,000
2.963	Fixed Gas Detector System Replacement	$150,000
2.964	Hypo Storage Tank	$20,000
2.965	Course Screens Replacement	$500,000
2.958	Carbon Scrubber - FRP Exhaust Damper Replacement	$60,000
	Herring Cove Wastewater Treatment Facility:	
2.801	Fine Screens - New Perforated Plate Screens	$1,350,000
2.966	UV Disinfection System - Replace Hydraulic System Controls	$30,000
2.967	Garage Door Refurbishment	$30,000
2.968	Chemical Storage Areas - Epoxy Floors	$30,000
2.968	Chemical Storage Area Upgrades	$75,000
2.970	New Sludge Extraction Solids Analyzers	$150,000
2.971	Replace Fournier Press Flywheel Covers	$25,000
2.972	Grease Sprayers Integration into SCADA	$50,000
2.973	Carbon Scrubber FRP Exhaust Damper Replacement	$50,000
	Mill Cove Wastewater Treatment Facility:	

HALIFAX WATER

Capital Budget 2022/23

Wastewater

Project Number	Project Name	Project Cost
2.505	Asset Renewal Program	$100,000
2.903	Dewatering - Centrifuge Rebuild Program	$30,000
2.989	Headworks Splitter Box Valve Actuators	$35,000
	Eastern Passage Wastewater Treatment Facility:	
2.808	New Yard Tractor	$12,000
2.974	UV System UPS	$80,000
2.975	Polymer Bay Heater Upgrades	$15,000
2.976	Spare Centrifuge Conveyor Gear Box	$10,000
2.977	Headworks Compressor & Air Dryer Replacement	$20,000
	Aerotech Wastewater Treatment Facility:	
2.912	Lagoon - Fencing Repairs	$20,000
2.983	Carbon Scrubbers - Media Repalcement	$80,000
2.984	Dewatering - HVAC System Improvements	$60,000
2.985	Centrate Diversion - Phase 2	$270,000
	Timberlea Wastewater Treatment Facility:	
2.509	Asset Renewal Program	$125,000
	Community Wastewater Treatment Facilities:	
2.05	Asset Renewal Program	$175,000
2.986	Middle Musquodoboit WWTF - Electrical Upgrades	$400,000
2.987	Middle Musquodoboit WWTF - Refurbish Polishing Pond Berms	$75,000
	Biosolids Processing Facility:	
2.919	Gas Sensor Upgrade Program	$15,000
2.924	CS1 - Screw & Liner Replacement	$75,000
2.930	Facility Upgrade - Preliminary and Detailed Design	$3,000,000
2.988	Biofilter - Slatted Floor Replacement	$50,000
	Wastewater - Treatment Facility -- T O T A L	**$10,872,000**
	Wastewater - Energy	
2.362	Energy Management Capital Program (Wastewater)	$500,000
2.491	Pump Station HVAC Retro-Commissioning Program	$100,000
	Wastewater - Energy -- T O T A L	**$600,000**
	Wastewater - Security	
4.008	Security Upgrade Program	$200,000

HALIFAX WATER

Capital Budget 2022/23

Wastewater

Project Number	Project Name	Project Cost
2.951	Safety Equipment (Wastewater)	$75,000
	Wastewater - Security -- T O T A L	**$275,000**
	Wastewater - Equipment	
2.451	Miscellaneous Equipment Replacement	$120,000
2.1011	Video Nozzle - Sewer Jet	$37,000
	Wastewater - Equipment -- T O T A L	**$157,000**
	Wastewater - Corporate Projects -- T O T A L	**$12,387,000**
	GRAND TOTAL - WASTEWATER	**$45,554,000**

HALIFAX WATER

Capital Budget 2022/23

Stormwater

Project Number	Project Name	Project Cost
	Stormwater - Pipes	
1.038	Integrated Stormwater Projects - Program	$1,200,000
1.102	Manhole Renewals SW	$16,000
1.103	Catchbasin Renewals SW	$65,000
1.135	Lateral Replacements SW	$25,000
1.204	National Disaster Mitigation Program	$50,000
1.145	Sullivan's Pond Storm Sewer System Replacement - Phase 2 Irishtown Rd to Harbour	$150,000
1.247	Penhorn Lake Stormwater System Renewal	$1,000,000
1.188	Cogswell Redevelopment - SW Sewer Relocation	$900,000
	Stormwater - Pipes -- T O T A L	**$3,406,000**
	Stormwater - Culverts/Ditches	
1.104	Driveway Culvert Replacements	$1,200,000
1.279	Corss Road Culvert Replacement Program - Field discovery and operations construction	$100,000
	Street Specific Culvert Replacements:	
1.260	43 Flat Lake Drive	$25,000
1.261	39 Flat Lake Drive	$30,000
1.262	9 Flat Lake Drive	$30,000
1.263	1 Windsor Drive	$25,000
1.264	51 Buckingham Drive	$35,000
1.265	1 Cambridge Court	$30,000
1.266	73 Kingsway Drive	$30,000
1.267	22 Kingsway Drive	$25,000
1.268	1 Arbutus Avenue	$27,000
1.269	6 Iris Avenue	$25,000
1.270	2 Primrose Avenue	$25,000
1.214	Bundy Lane, near civic 79	$66,000
1.215	Parkway Dr at Atholea Dr	$65,000
1.216	Fredrick Dr at Dyke Rd	$93,000
1.217	Millers Rd, near civic 1	$81,000
1.271	Seabreeze Dr at Caldwell Rd	$94,000
1.272	Shore Rd, near civic 2269	$62,000
1.274	Riley Rd, near civic 135	$87,000

HALIFAX WATER

Capital Budget 2022/23

Stormwater

Project Number	Project Name	Project Cost
1.275	Wilfred Joseph Dr at Simmonds Rd	$76,000
1.276	Old German Rd, near civic 10	$70,000
1.278	Sime Crt, near civic 5	$65,000
	Stormwater - Culverts/Ditches -- T O T A L	**$2,366,000**
	Stormwater - Corporate Projects -- T O T A L	**$2,765,500**
	GRAND TOTAL - STORMWATER	**$8,537,500**

HALIFAX WATER

Capital Budget 2022/23

Corporate Projects

Project Number	Project Name	Project Cost
	Corporate - Information Technology	
4.157	Asset Condition	$190,000
4.151	Capital Planning	$1,000,000
1.011	Computer Replacement Program	$400,000
4.147	Document Management Sharepoint Rollout	$300,000
4.149	Electronic Content Management Linkage	$200,000
4.126	Full Enterprise Data Warehouse	$300,000
4.153	General Analytic Tool	$100,000
4.012	Network Upgrades	$280,000
4.101	Mobile Devices and Applications	$800,000
4.095	New CRM with Integration	$500,000
4.048	SAP Rate Structure Support	$220,000
4.15	Enterprise Resource Planning Solution	$2,100,000
4.107	Customer Portal	$200,000
4.152	Security Awareness	$420,000
4.152	Vulnerability and Patch Management	$190,000
4.152	Data Protection and Classification	$900,000
4.152	Asset and Configuration Management	$245,000
4.152	Identity and Access Management	$150,000
4.152	Policy and Standards	$135,000
4.152	Change Management	$120,000
4.152	Authentication and Authorization	$40,000
4.152	Risk Management	$460,000
4.152	Third Party Risk Management	$310,000
4.152	Continuity and Resilience	$180,000
4.194	Explore Intelligent Water	$260,000
4.195	New Service Account Compliance Program	$430,000
	Corporate - Information Technology -- T O T A L	**$10,430,000**
	Corporate - GIS	
4.04	GIS Data Program	$250,000
4.115	GIS Data Build - Services (ICI)	$150,000
4.01	Sewer Service Entry	$150,000
4.116	GIS Data Project (CAD schematic retirement)	$100,000
4.038	GIS Hardware/Software Program	$50,000

HALIFAX WATER

Capital Budget 2022/23

Corporate Projects

Project Number	Project Name	Project Cost
4.039	GIS Application Support Program	$150,000
4.105	GIS/Cityworks Upgrade Program	$50,000
4.059	GIS Data Modelling	$50,000
4.155	Stormwater Billing Imagery Acquisition and Analysis	$150,000
4.198	Intelligent Water (GIS Initiatives)	$50,000
	Corporate - GIS -- T O T A L	**$1,150,000**
	Corporate - Asset Management	
2.872	Wastewater Sewer Condition Assessment	$285,000
1.254	Storm Sewer Condition Assessment	$125,000

HALIFAX WATER

Capital Budget 2022/23

Corporate Projects

Project Number	Project Name	Project Cost
2.043	Corporate Flow Monitoring Program	$1,200,000
4.158	Condition Assessment Program	$400,000
4.163	Annual Asset Management Plan Update	$10,000
4.165	Asset Management Awareness Program	$20,000
4.168	Model Enhancements	$50,000
4.113	Climate Change Management Program	$200,000
4.183	Annual Unit Rates Review	$10,000
4.184	Institutional Capacity Assessment Update	$50,000
4.185	Regional Development Charge Program Implementation	$300,000
4.178	Model Update and Calibration	$75,000
2.878	Wastewater Treatment Facilities Compliance Plan	$150,000
4.197	CSO Management Study	$50,000
1.496	Water Safety Plan	$500,000
	Corporate - Asset Management -- T O T A L	**$3,425,000**
	Corporate - Facility	
4.187	Burnside Operations Centre	$9,000,000
4.077	Building Capital Improvements	$230,000
3.221	Energy Management Capital Program	$100,000
	Corporate - Facility -- T O T A L	**$9,330,000**
	Corporate - SCADA & Other Equipment	
4.093	GPS Units - Replacement	$45,000
4.189	Central Spread Spectrum Radio Network Replacement Program	$40,000
4.191	ICS Cyber-Security Enhancements 2022-2023	$105,000
4.192	PI System Enhancements 2022-2023	$150,000
4.193	AMI Communications Upgrade 2022/2023	$30,000
4.190	SCADA Equipment Renewals 2022-2023	$48,000
4.188	Wastewater Community Plant Scada Enhancements	$26,000
4.154	Customer Meters - New and Replacement	$530,000
	Corporate - SCADA & Other Equipment -- T O T A L	**$974,000**
	Corporate - Fleet	
4.006	Fleet Upgrade Program Stormwater	$351,000
4.006	Fleet Upgrade Program Wastewater	$1,404,000
4.007	Fleet Upgrade Program Water	$355,000
	Corporate - Fleet -- T O T A L	**$2,110,000**

HALIFAX WATER

Capital Budget 2022/23

Corporate Projects

Project Number	Project Name	Project Cost
	GRAND TOTAL - Corporate Projects	**$27,419,000**
	ALLOCATION BREAKDOWN:	
	Water - Corporate Projects - T O T A L	$12,266,500
	Wastewater - Corporate Projects -- T O T A L	$12,387,000
	Stormwater - Corporate Projects -- T O T A L	$2,765,500
	GRAND TOTAL - Corporate Projects	**$27,419,000**

HALIFAX WATER

Capital Budget 2022/23

Summary of Routine Capital Expenditures included within Capital Budget

Project Number	Project Name	Project Cost	Asset Class
3.067	Valves Renewals	$200,000	Water
3.068	Hydrants Renewals	$75,000	Water
3.069	Service Lines Renewals	$100,000	Water
3.390	Lead Service Line Replacement Program	$2,000,000	Water
3.101	Miscellaneous Equipment Replacement (W)	$50,000	Water
4.007	Fleet Upgrade Program Water	$355,000	Water
2.357	Manhole Renewals WW	$60,000	Wastewater
2.358	Lateral Replacements WW (non-tree roots)	$1,785,000	Wastewater
2.563	Lateral Replacements WW (tree roots)	$570,000	Wastewater
2.451	Miscellaneous Equipment Replacement (WW)	$120,000	Wastewater
4.006	Fleet Upgrade Program Wastewater	$1,404,000	Wastewater
1.102	Manhole Renewals SW	$16,000	Stormwater
1.103	Catchbasin Renewals SW	$65,000	Stormwater
1.135	Lateral Replacements SW	$25,000	Stormwater
4.006	Fleet Upgrade Program Stormwater	$351,000	Stormwater
4.011	Desktop Computer Replacement Program	$400,000	Corporate
4.093	GPS Units - Replacement	$45,000	Corporate
4.154	Customer Meters - New and Replacement	$530,000	Corporate
4.012	Network Upgrades	$280,000	Water & Wastewater
	GRAND TOTAL - Routine Capital Projects	**$8,431,000**	

Appendix C: 2022/23 Operating Budget

HALIFAX WATER
STATEMENT OF EARNINGS - ALL SERVICES - NSUARB
PROPOSED OPERATING BUDGET
APRIL 1, 2022 to MARCH 31, 2023
(in thousands)

	ACTUAL APR 1/20 MAR 31/21	APPROVED BUDGET (1) APR 1/21 MAR 31/22	**PROPOSED BUDGET APR 1/22 MAR 31/23**
Operating revenues	$ 136,569	$ 150,466	**$ 152,765**
Operating expenditures	113,689	125,379	**128,788**
Earnings from operations before financial and other revenues and expenditures	22,880	25,087	**23,977**
Financial and other revenues			
Interest	215	173	**105**
Other	748	549	**628**
	963	722	**733**
Financial and other expenditures			
Interest on long term debt	7,118	7,603	**6,669**
Repayment on long term debt	20,379	22,717	**21,846**
Amortization of debt discount	209	258	**233**
Dividend/grant in lieu of taxes	5,951	6,836	**6,804**
Other	69	46	**46**
	33,726	37,461	**35,598**
Loss for the year	$ (9,883)	$ (11,651)	**$ (10,888)**

1. 2021/22 Operating Budget approved by the Halifax Water Board of Commissioners, January 28, 2021.

HALIFAX WATER
STATEMENT OF EARNINGS - WATER - NSUARB
PROPOSED OPERATING BUDGET
APRIL 1, 2022 to MARCH 31, 2023
(in thousands)

	ACTUAL APR 1/20 MAR 31/21	APPROVED BUDGET (1) APR 1/21 MAR 31/22	**PROPOSED BUDGET APR 1/22 MAR 31/23**
Operating revenues			
Water	$ 47,631	$ 48,424	**$ 48,771**
Public fire protection	7,336	7,628	**7,628**
Private fire protection	1,001	1,312	**1,335**
Bulk water stations	318	337	**334**
Late payment and other connection fees	155	236	**264**
Miscellaneous	204	276	**296**
	56,645	58,212	**58,629**
Operating expenditures			
Water supply and treatment	9,987	10,778	**11,246**
Water transmission and distribution	12,031	11,876	**12,441**
Engineering and technology services	3,654	5,654	**4,667**
Regulatory services	1,091	1,201	**1,465**
Corporate services	2,614	4,565	**3,985**
Administration	3,619	2,511	**2,986**
Depreciation and amortization	10,879	12,052	**12,171**
	43,875	48,637	**48,961**
Earnings from operations before financial and other revenues and expenditures	12,770	9,576	**9,667**
Financial and other revenues	699	495	**545**
Financial and other expenditures	12,974	15,292	**14,387**
Earnings (loss) for the year	$ 495	$ (5,221)	**$ (4,175)**

1. 2021/22 Operating Budget approved by the Halifax Water Board of Commissioners, January 28, 2021.

HALIFAX WATER
STATEMENT OF EARNINGS - WASTEWATER - NSUARB
PROPOSED OPERATING BUDGET
APRIL 1, 2022 to MARCH 31, 2023
(in thousands)

	ACTUAL APR 1/20 MAR 31/21	APPROVED BUDGET (1) APR 1/21 MAR 31/22	**PROPOSED BUDGET APR 1/22 MAR 31/23**
Operating revenues			
Wastewater	$ 69,605	$ 80,619	**$ 81,608**
Leachate and other contract revenue	416	484	**491**
Septage tipping fees	486	505	**475**
Overstrength surcharge	1	15	**0**
Airplane effluent	33	76	**76**
Late payment and other connection fees	118	221	**247**
Miscellaneous	163	247	**253**
	70,822	82,166	**83,149**
Operating expenditures			
Wastewater collection	14,467	12,604	**13,096**
Wastewater treatment	20,623	22,071	**23,395**
Engineering and technology services	4,187	5,881	**7,109**
Regulatory services	1,385	1,587	**1,674**
Corporate services	2,189	3,840	**3,480**
Administration	2,965	2,079	**2,582**
Depreciation and amortization	15,019	16,775	**16,093**
	60,835	64,838	**67,429**
Earnings from operations before financial and other revenues and expenditures	9,987	17,329	**15,721**
Financial and other revenues	231	197	**176**
Financial and other expenditures	18,176	19,043	**18,167**
Loss for the year	$ (7,958)	$ (1,518)	**$ (2,270)**

1. 2021/22 Operating Budget approved by the Halifax Water Board of Commissioners, January 28, 2021.

HALIFAX WATER
STATEMENT OF EARNINGS - STORMWATER - NSUARB
PROPOSED OPERATING BUDGET
APRIL 1, 2022 to MARCH 31, 2023
(in thousands)

	ACTUAL APR 1/20 MAR 31/21	APPROVED BUDGET (1) APR 1/21 MAR 31/22	**PROPOSED BUDGET APR 1/22 MAR 31/23**
Operating revenues			
Stormwater site generated service	$ 5,127	$ 6,051	**$ 6,790**
Stormwater right of way service	3,835	3,835	**3,996**
Late payment and other connection fees	38	104	**104**
Miscellaneous	102	97	**97**
	9,102	10,087	**10,987**
Operating expenditures			
Stormwater collection	4,762	5,885	**5,281**
Engineering and technology services	440	1,396	**2,165**
Regulatory services	1,505	1,684	**1,727**
Corporate services	278	555	**349**
Administration	482	338	**287**
Depreciation and amortization	1,512	2,046	**2,588**
	8,979	11,905	**12,398**
Earnings from operations before financial and other revenues and expenditures	123	(1,817)	**(1,411)**
Financial and other revenues	33	31	**12**
Financial and other expenditures	2,576	3,126	**3,043**
Loss for the year	$ (2,420)	$ (4,912)	**$ (4,442)**

1. 2021/22 Operating Budget approved by the Halifax Water Board of Commissioners, January 28, 2021.

HALIFAX WATER
STATEMENT OF EARNINGS - REGULATED AND UNREGULATED ACTIVITIES - NSUARB
PROPOSED OPERATING BUDGET
APRIL 1, 2022 to MARCH 31, 2023
(in thousands)

	ACTUAL APR 1/20 MAR 31/21	APPROVED BUDGET (1) APR 1/21 MAR 31/22	**PROPOSED BUDGET APR 1/22 MAR 31/23**
REGULATED ACTIVITIES			
Operating revenues			
Water	$ 47,631	$ 48,424	$ **48,771**
Wastewater	69,605	80,619	**81,608**
Stormwater	8,962	9,886	**10,785**
Public fire protection	7,336	7,628	**7,628**
Private fire protection	1,001	1,312	**1,335**
Other	1,061	1,495	**1,557**
	135,596	149,363	**151,684**
Operating expenditures			
Water supply and treatment	9,970	10,740	**11,208**
Water transmission and distribution	12,031	11,876	**12,441**
Wastewater collection	14,421	12,503	**13,000**
Stormwater collection	4,762	5,885	**5,281**
Wastewater treatment	20,060	21,274	**22,634**
Engineering and technology services	8,281	12,910	**13,934**
Regulatory services	3,981	4,471	**4,866**
Corporate services	5,026	8,887	**7,799**
Administration	7,028	4,859	**5,706**
Depreciation and amortization	27,392	30,872	**30,852**
	112,952	124,278	**127,721**
Earnings from operations before financial and other revenues and expenditures	22,644	25,086	**23,963**
Financial and other revenues			
Interest	215	173	**105**
Other	88	31	**32**
	303	204	**137**
Financial and other expenditures			
Interest on long term debt	7,118	7,592	**6,669**
Repayment on long term debt	20,379	22,693	**21,846**
Amortization of debt discount	209	258	**233**
Dividend/grant in lieu of taxes	5,951	6,836	**6,804**
Other		1	**1**
	33,657	**37,381**	**35,553**
Loss for the year	$ (10,710)	$ (12,091)	$ **(11,452)**
UNREGULATED ACTIVITIES			
Operating revenues			
Septage tipping fees	$ 486	$ 505	$ **475**
Leachate and other contract revenue	416	484	**491**
Airplane effluent	33	76	**76**
Miscellaneous	38	38	**38**
	973	1,103	**1,080**
Operating expenditures			
Water supply and treatment	17	32	**32**
Wastewater collection	46	88	**82**
Wastewater treatment	563	798	**762**
Sponsorships and donations	93	73	**73**
Depreciation and amortization	18	0	**0**
Administration	0	110	**119**
	737	1,101	**1,067**
Earnings from operations before financial and other revenues and expenditures	236	2	**13**
Financial and other revenues			
Other	660	518	**596**
Financial and other expenditures			
Other	69	80	**45**
	69	80	**45**
Earnings for the year	$ 827	$ 440	$ **564**
Total earnings (loss) for the year (Regulated and Unregulated)	$ (9,883)	$ (11,651)	$ **(10,888)**

1. 2021/22 Operating Budget approved by the Halifax Water Board of Commissioners, January 28, 2021.

Appendix D: 2022/23 Business Plan on a Page

Halifax Water

2022/23 Business Plan

One Team, One 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

Relationships
We nurture relationships with our customers, our team members and the environment. We are engaged in the neighbourhoods we serve and we support continual learning across our team.

Innovation
We are among the top utilities across the continent and we are known on the global stage. We always ask, "how can we improve efficiency, sustainability, creativity and the customer experience?"

Accountability
We refuse to cut corners. We check in with our excellence standards regularly and look to one another for support. Safety steers our decision-making. We are driven to make our policies, decisions and projects as clear as our drinking water.

Protection
Halifax Water protects the health and well-being of our population. We exist to guard natural resources, finding ways to sustain our communities and environment.

People

We attract and retain high-quality team members in an inclusive and respectful work environment. We are committed to our customers and the communities where we live and work, determined to provide a high level of service and sustainable future through ongoing engagement.

- Enhance workforce planning (talent management, meeting staff resource requirements, training, etc.).
- Build a positive & diverse workplace.
- Increase stakeholder & customer engagement.
- Support transition of Halifax Water Board with new members.
- Ensure that major initiatives have communication and stakeholder engagement plans.
- Enhance information available to customers through Customer Connect & bill redesign.

Health, Safety & Environment

We are focused on a safety-first culture, working to provide healthy, safe, sustainable, and reliable services for our community.

- Continue to enhance safety & security culture, starting with Safety Leadership training.
- Gain approval for new biosolids strategy & execute a contract for the new Biosolids Processing Facility (BPF).
- Develop a Climate Action Plan.
- Align green initiatives for fleet and buildings with Climate Action Plan.
- Maintain regulatory compliance & enhance reporting.
- Execute the Get the Lead Out program.
- Launch new service compliance program.
- Implement corporate Environmental Management System (EMS).

Financial & Regulatory Accountability

It is fundamental to ensure that Halifax Water has capacity to fund existing and future infrastructure. We prudently manage assets and operate our business by balancing value and customer service.

- Improve financial position & update the long-range financial plan.
- Optimize capital project planning & delivery.
- Progress asset management & infrastructure planning initiatives.
- Complete an actuarial valuation of the Halifax Water Employees' Pension Plan & implement recommendations.
- Complete a cost-of-service hearing & file a general rate application.
- Complete System Assessment reports & Water Safety Plans.
- Secure Regulatory approval for:
  - Cogwell District Energy System (DES)
  - Burnside Operations Depot
  - Cogswell Redevelopment Infrastructure Relocation
  - Biosolids Processing Facility (BPF)
  - Mill Cove WWTF Upgrade

Operational Excellence

We are committed to service, reliability, and quality for our customers. Focused on safely and efficiently building, operating, and maintaining our critical infrastructure, we ensure a more sustainable community.

- Implement expanded stormwater service in June 2022.
- Develop an operating plan for the Burnside Operations Depot.
- Year 2: Water Supply Enhancement Program.
- Optimize Water Supply Plant (WSP) & Wastewater Treatment Facility (WWTF) processes through Dalhousie research partnership.
- Incorporate Digital Water Strategy in the Five Year Strategic Plan.
- Implement corporate Enterprise Risk Management (ERM) & improve cyber security maturity.
- Implement Enterprise Resource Planning (ERP) project to improve operational efficiency.
- Maintain a high level of day-to-day service that our customers have come to expect.

STRAIGHT from the SOURCE

Halifax Water