

2023/24



Annual Report

MARCH 31, 2024

Forces of Nature

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About Us

Halifax Water is a proud steward of the water cycle, providing clean water to customers, and safely conveying it back to the source.

PURPOSE

to supply and safeguard sustainable, high-quality water services.

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.

Our Leaders

BOARD OF COMMISSIONERS March 31, 2024



Colleen Rollings
P.Eng., PMP,
Board Chair



Cathy Deagle Gammon
Vice Chair



Cathie O'Toole
CAO HALIFAX



Mimi Kolomytsev



Becky Kent Councillor



Patty Cuttall Councillor



Kostia Zaharov
P.Eng., PMP, MBA



Paul Russell Councillor

EXECUTIVE STAFF March 31, 2024



Kenda MacKenzie
P.Eng.,
General Manager and CEO (Acting)



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



Reid Campbell
M.Eng., P.Eng.
Director, Engineering &
Technology Services



Colin Waddell
P.Eng.,
Acting Director, Operations



Ashley Kendell
BBA, CPHR
Director, People and Culture



Colin Taylor
LLB
General Counsel

Message from the Chair



Colleen Rollings,
P.Eng., PMP
Chair of Halifax Water Board of
Commissioners

I am honoured to continue to serve as the Chair of the Halifax Water Board of Commissioners. The Board is proud to support Halifax Water's focus on delivering reliable service for customers and our community. Throughout fiscal 2023/24, Halifax Water remained steadfast to its mandates while managing challenging events such as wildfires and flash floods and unprecedented growth within HALIFAX.

There were some changes to the Board throughout the fiscal year. On behalf of the Board, I would like to express our sincere thank you to those that dedicated service to Halifax Water: Councillor Pamela Lovelace for a three-year term ending November 2023, Commissioner Mimi Kolomytsev and Commissioner Kostia Zaharov for two-year terms ending early in April 2024.

We were pleased to welcome Councillor Paul Russell to the Board in December 2023. The role of CAO designate was shared by Denise Schofield, Peter Duncan, and HALIFAX CAO Cathie O'Toole throughout the year.

This past year, Halifax Water experienced changes in its leadership. Kenda MacKenzie, P.Eng., was appointed Acting General Manager and CEO in late January 2024. The Board is proud to support the leadership of Ms. MacKenzie and the entire Halifax Water team. A search for a permanent General Manager and CEO is planned for Fall 2024.

The organization remains committed to building a more robust and diverse culture that reflects our community.

Halifax Water continues to focus on people while maintaining its services. Through its capital work, it provides a significant local economic benefit for a fast-growing municipality. As it works to meet HALIFAX's needs, the utility now has approximately 600 employees, a \$146.7 million capital budget, and a \$172.2 million operating budget for fiscal 2023/24. Investing in these critical water, wastewater, and stormwater services will benefit residents and businesses and provide economic and environmental health benefits for years to come.

On behalf of the Board of Commissioners, I want customers to know that we are committed to responsible governance and oversight for Halifax Water. As a Board, we understand the challenges of running a modern water utility, and for that, we extend our deepest admiration and appreciation to every Halifax Water employee. Keep up the great work.

Message from the General Manager and CEO (Acting)



Kenda MacKenzie
P.Eng.
General Manager and CEO (Acting)

As a responsible water utility, the Halifax Water team is committed to safeguarding our resources and managing our infrastructure harmoniously with the surrounding environment. However, harmony with nature has its challenges, and sometimes, its full force is meant to remind us just how powerful it is – which was the case in fiscal 2023/24.

From extreme wildfires (in May) to flash floods (July and August), our employees faced many “forces of nature” this past year. But while Mother Nature may have caused some terrible damage throughout our communities, our teams worked safely to maintain service for our customers. Our employees continually show that they are also forces of nature and a team to be proud of.

In 2023/24, Halifax Water met all its obligations

under the Halifax Regional Water Commission Act and the Public Utilities Act. In addition to its obligations through legislation, the utility complied with most of its operating permits for its water and wastewater systems for the fiscal year ending March 31, 2024.

We continue to focus on our Water Supply Enhancement Program, which will require hundreds of millions of dollars in new investment over the next decade. Through this work, we can address aging infrastructure and prepare for population growth and more stringent regulations with a more resilient and adaptable water supply system.

At our wastewater facilities, achieving regulatory compliance requires a disciplined approach that considers weather influences, equipment efficiency, and customer compliance with Halifax Water Regulations. Through this discipline, Halifax Water achieved 95% sample compliance with Nova Scotia Environment and Climate Change requirements at the wastewater treatment facilities, consistent with the prior year.

Halifax Water’s purpose is to supply and safeguard sustainable, high-quality water services. I am proud to say that our team has done a great job delivering services for our customers this past year.

Throughout fiscal 2023/24, the Nova Scotia Utility and Review Board (NSUAR) approved some significant applications for Halifax Water. This included the approval to construct the Port Wallace Transmission Main, replace to the Silvers Sands Water Supply Facility with a connection to the Lake Major system, and to start detailed design work on the Pretreatment and Clarification

components for the next phase of the Water Supply Enhancement Program.

All these projects ensure asset renewal, support growth in our community, and help us achieve compliance as we embark on updating Halifax Water’s Integrated Resource Plan (IRP), which will map out our expected infrastructure requirements for the next 30 years.

As we continue to advance our plans and meet our mandates, Halifax Water continues to face the challenges of increased cost pressures driven by inflation, contract costs, and an increasingly tight labour market. We recognize that we are not the only organization experiencing these financial pressures and are committed to containing costs and delivering cost-effective service for our customers.

Thank you to all Halifax Water employees, who are forces of nature at being steadfast in their commitment to serving our customers and our municipality.





Operational Excellence

2023/24 was another challenging year due to the impacts of the severe weather in our region. The Halifax Water Engineering and Capital Infrastructure Group continued to develop and implement the recommendations of Halifax Water's Integrated Resource Plan, which identifies key capital upgrades required to accommodate the anticipated short-term and long-term growth in Halifax. Some milestones for 2023/24 included the tender and award of contracts for constructing transmission main segments, progress on Cogswell Development and various emergency response efforts to support infrastructure needs during the floods and fires.

Responding to Forces of Nature

Hammonds Plains Wildfire

On the afternoon of May 28, a massive wildfire broke out in the Tantallon area. The fire destroyed about 200 buildings, including 151 homes, and forced the evacuation of more than 164,000 people. In coordination with the Emergency Operations Centres, Halifax Water replaced a critical cross culvert that ran underneath Hammonds Plains Road, which had been destroyed in the fire.

On June 1, Halifax Water crews assisted the Halifax Regional Fire Department in safely disconnecting a fire hydrant that a pumper truck was connected to. The crews quickly disconnected the truck from the hydrant so the team could continue fighting the fire.

July Flooding

On the afternoon of Friday, July 21, Nova Scotia

experienced an extreme weather event that continued into early Sunday morning. More than 250 mm of rain fell in some areas.

The resulting flash flooding caused substantial interruption to service and significant damage to wastewater and stormwater systems. Throughout the weekend, Halifax Water was inundated with hundreds of customer calls and messages on social media regarding washouts, manhole covers and flooding.

While the Halifax peninsula and Dartmouth areas received limited damage, assessing the impacts continued for weeks. Hundreds of driveway culverts were washed out, and the priority was to ensure customers regained access to their properties.

In the first week reinstatement activities began Sunday, July 23, with an estimated 35 driveways



made passable.

Dunbrack Street Water Main Repair

On Saturday, July 22, Halifax Water coordinated a 36" water main repair at the intersection of Walter Havill Drive and Dunbrack Street. During extreme rain and soggy conditions, the team safely repaired a major pipe section that supplies water to Spryfield and the Herring Cove area. Through wind and rain, crews successfully executed a coordinated effort to manage traffic control, maintain water service, ensure water supply for fire protection, and then chlorinate and flush the line before bringing it back into service without impacting the environment.

These challenging initiatives exemplify how Halifax Water works together as a team to supply and safeguard sustainable, high-quality water services, even in the toughest circumstances.

Hammonds Plains Road Stormwater Culvert Replacement

During the July extreme rainfall and flooding event, a critical piece of stormwater infrastructure that allows water to flow beneath Hammonds Plains Road was damaged. Crews made temporary repairs immediately after the flood, and the cross culverts



were replaced in October 2023.

Flash Flood at Farmer's Wastewater Pumping Station

On Sunday, July 23, following the recession of the flash flood waters on Hammonds Plains Road, Staff safely entered Farmers Dairy Lane to assess the condition of a medium-sized wastewater pumping station that lost communication during the storm from earlier in the weekend. Flash flood waters in this area surged far beyond normal levels. Farmers Dairy Lane and the building that operates the wastewater pumping system were almost under nine feet of water. The generator inside the building kept the system operating until it was completely submerged under water on

Friday night.

Central Operations initiated emergency response measures to stop the uncontrolled wastewater flow that was now occurring. Staff were dispatched from East and West Operations to assist Central Operations, and crews worked tirelessly to stop the wastewater outflow into the local waterways. Up to seven vacuum trucks worked simultaneously around the clock to manage the inflow to this station.

For several days, staff worked extended hours through hot July temperatures to complete the job. Three days after the flooding, the station was running on automatic generator power.





Capital Projects Supporting Growth

Gallery Crescent PRV

A new pressure-reducing valve (PRV) chamber was constructed on Gallery Crescent, to improve the resiliency of the water distribution system in Middle and Lower Sackville. The Gallery PRV can be a parallel or backup supply to Sackville High School.

Burnside Drive Watermain Extension

In order to create a more robust water disruption system, a Bedford-Burnside interconnection has been proposed. This 30 inch diameter water main will help me with supply objectives and support the overall system supply strategy. There are significant benefits the commissioning of this interconnection will provide including A Bedford-Burnside system interconnection, a 30-inch (750mm) diameter watermain, is proposed to meet the supply objectives for the Lake Major system. It is part of the overall system supply strategy, and there are significant benefits that the commissioning of this interconnection would provide:

- Allows for improved operation of the Akerley Reservoir, which is currently only supplied via the Caledonia Road transmission main. There would be less reliance on Topsail Chamber, and the connection would strengthen the overall Lake Major system.
- Minimizes transmission upgrades needed within the Lake Major network.
- Helps provide resiliency to the Lake Major system.
- Provides opportunities for some limited emergency water supply to the Pockwock system.

The transmission main corridor is along the Highway 107 Connector, which links Bedford to

Burnside. The IRP identified the project's second phase as being the section of the transmission main through Bedford between Duke Street and the Sackville Supply Connection.

Silverside Water Booster Station Upgrade

This project upgraded the water booster station that provides water services to the Waverley community. A backup generator was installed to improve resiliency and reliability of water services in the area. Nova Scotia Power installed new utility poles and powerlines to support the upgrades to the booster station.

Windsor Street Water Main Upgrade

Almost 50% of the Peninsula growth is proposed in the Young Street area. Upsizing the existing watermains along Young Street, Robie Street, Windsor Street, and Almon Street to 20-inch (500 mm) diameter is required to accommodate the expected growth in population.

In 2023, Halifax Water upgraded the Windsor Street watermain between Young Street and Cork Street.

Churchill Drive Water Replacement

Significant growth is anticipated on the Halifax Peninsula in the next thirty years. The existing transmission mains that support the Peninsula area (Robie, Chain Control, MacDonald Bridge) have been identified as needing replacement. Starting at Chebucto Road, the replacement water transmission mains will run under the CN Railway, along the entire length of Churchill Drive (through Upper Flynn Park) and end at the intersection with Quinn Street.

Capital Projects Supporting Asset Renewal

Enterprise Resource Planning

In August 2023, Halifax Water launched Cayenta ERP as its primary management system for accounting, budgeting, work order management, customer records, billing, and inventory. This cost-effective enterprise management solution was implemented to replace SAP. The new solution will better support project integration to ensure the best value for our customers.

Infrastructure Renewal Statistics

Water Mains Replaced	2.0 KM
Wastewater/Stormwater Mains Reinforced	0.8 KM
Wastewater/Stormwater Mains Replaced	0.11 KM

Capital Projects Supporting Energy Reduction

Wastewater Treatment requires a significant amount of energy and Halifax Water continues to find opportunities to reduce energy demand.

Solar Project - Aerotech WWTF

In July 2020, Halifax Water was awarded funding through the Investment in Canada Infrastructure Program (ICIP). Since August 24th, 2023, the Aerotech WWTF Solar PV (solar photovoltaic) System has been producing clean electricity.

The system generates 125 kW peak AC power, has an expected lifespan of 30 years, and contains a whopping 384 x 440 Watt solar PV modules. The system will provide approximately 15% of the plant's annual energy consumption, and at peak power output, it will provide approximately 50% of the plant's average electrical demand. The ICIP funded 73% of the project cost.



Wastewater Treatment Facility Enhancements & Research

As climate change intensifies and populations grow, more stringent effluent regulations are on the horizon. Halifax Water must adapt proactively to these evolving challenges. To this end, Halifax Water has advanced several wastewater treatment projects in partnership with Dalhousie University, supported by a

Natural Science and Engineering Research Council of Canada (NSERC) Collaborative Research & Development Grant and an NSERC Alliance Grant for Innovation in Climate Change Adaptation in Water and Wastewater Treatment. Below are some key examples of this work:

Chemically Enhance Primary Treatment Optimization at Dartmouth WWTF

Our wastewater treatment facilities generate large volumes of complex data that technicians could use for process optimization. However, this data often contains significant noise, making it challenging to identify the optimal path. In collaboration with Dalhousie University, we developed a probabilistic model, or decision tree, to guide staff through decision-making processes by presenting potential outcomes and their likelihood of success at each step.



Biological Aerated Filtration (BAF) Pilot Testing

Bench-scale pilot plant – Biological Aerated Filtration (BAF) for treatment upgrades

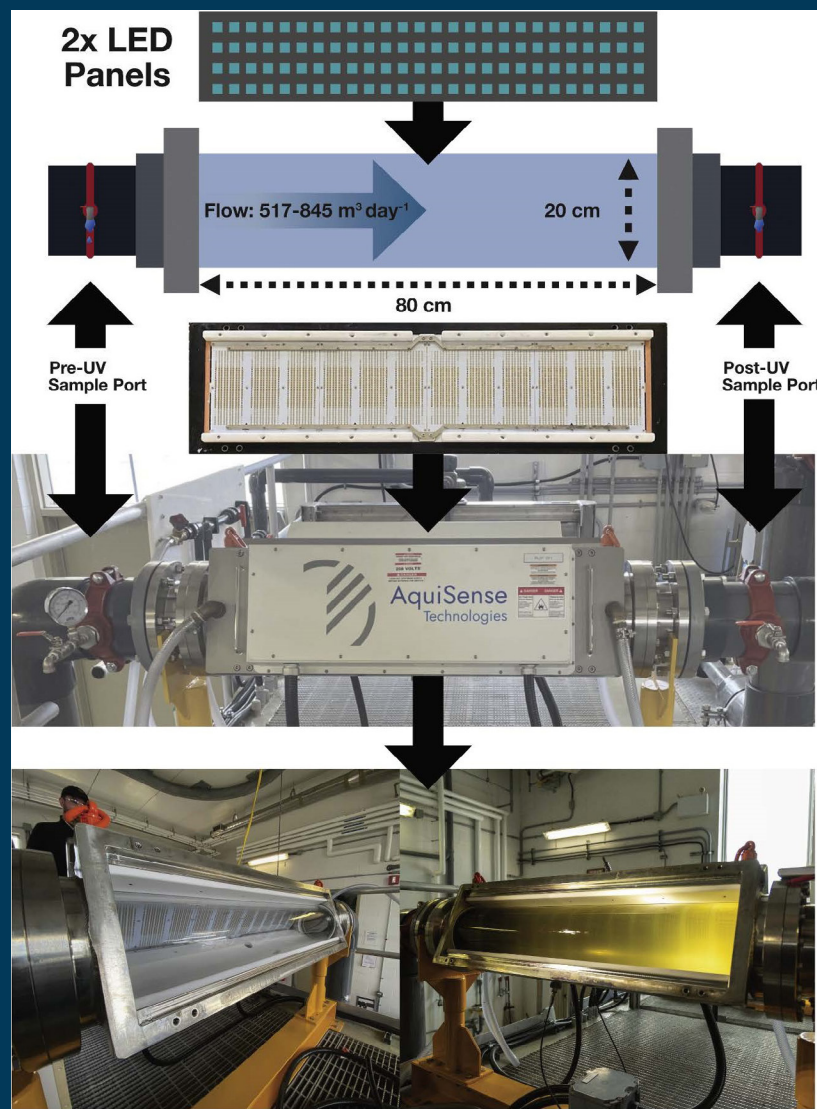
Upcoming regulations will necessitate secondary treatment at the wastewater treatment facilities along the Halifax harbour. This study

aimed to (1) assess whether BAF could be integrated into an existing full-scale WWTP as a secondary treatment process to reduce effluent contaminants, and (2) optimize BAF performance by adjusting reactor operations to maximize contaminant removal and minimize operational costs.

UV-LED at Eastern Passage WWTF

Dalhousie University and Halifax Water collaborated to test the world’s first full-scale 280 nm UV-LED reactor for wastewater disinfection. The results established that UV-LEDs are an effective at-scale wastewater disinfectant, comparable to conventional low-pressure UV systems, while using significantly less energy. This innovation also reduces our environmental impact.

By integrating advanced technologies and data-driven approaches, we are improving the efficiency and effectiveness of our wastewater treatment processes and future-proofing our operations to ensure we continue to meet the needs of our community in a sustainable and responsible manner.



UV LED Pilot at Eastern Passage WWTF



Biosolids Processing Facility

The Aerotech Biosolids Processing Facility (BPF) is in the Aerotech Industrial Park in Goffs, NS. The facility receives and processes dewatered sludge, or biosolids, from Halifax Water’s wastewater treatment facilities. Biosolids are currently processed using the N-Viro alkaline stabilization process to produce a Canadian Food Inspection Agency-registered fertilizer sold for use on non-food-bearing crops.

The IRP, completed in 2019 and subsequent analyses by Halifax Water staff predict that by 2046, Halifax Water will need to process more than double the current quantity of biosolids. This is due to population growth and the installation of secondary treatment processes at the Halifax, Dartmouth, and Herring Cove wastewater treatment facilities. This forecast exceeds the production capacity of the current BPF.

A new facility requires detailed planning to ensure that it is cost-effective for

our customers and remains environmentally friendly. The procurement process is currently underway to execute a Design, Build, Operate and Maintain agreement. The request for proposal portion of this process is expected to be completed in 2024/25 fiscal year.

The new facility is expected to include capabilities for enhanced resource recovery. Biosolids will be processed to stabilize the mate material and recover renewable natural gas (RNG), and produce fertilizer and agricultural supplements that will be sold to the local natural gas grid and agricultural sector. The facility is anticipated to produce more than 35,000 tonnes per year of fertilizer and over 200,000 gigajoule per year of RNG at full capacity.

Driveway & Cross Culvert Maintenance Program

Halifax Water owns and maintains a large inventory of driveway and cross culverts within the service boundary set by HALIFAX. Cross culverts direct stormwater across HALIFAX owned streets and driveway culverts convey stormwater across customer driveways. As these culverts reach the end of their service life, they are identified for replacement. Halifax Water currently budgets \$1.2M for driveway culvert replacements and \$3.0M for cross culvert

replacements on an annual basis.

In 2023/24, Halifax Water replaced 161 driveway culverts and 17 cross culverts. Driveway culverts are primarily replaced by Operations staff while cross culverts are replaced using a blend of Operations and contractors. To ensure we provide value to our stormwater customers, culverts are grouped together for replacement at the same time for efficiency.



Wet Weather Management Program

Halifax Water's Wet Weather Management Program (WWMP) is a significant initiative that is focused on reducing wet weather flows that enter and can overwhelm our wastewater system. The current WWMP is based on data collected for the 2019 IRP and focuses on the priority WWTF sewersheds: Mill Cove, Halifax, Dartmouth and Easter Passage.

These sewersheds will continue to be the priority over the next several years. Currently, of the over 100 flow meters in place through Asset Management, 61 are dedicated to the WWMP to understand the influence of wet

weather on flows in the sewersheds and to help direct Sanitary Sewer Evaluation Survey (SSES) activities for the program.

Of the 61 WWMP areas, 37 have active Decision Matrix Reports (DMRs) being worked on. The DMRs are used to identify deficiencies in an area and provide a recommended rehabilitation strategy. Following rehabilitation efforts, post-rehab flow monitoring analysis is used to verify results and identify when further work is required, or an area is completed. The following SSES activities were completed in 2023/24:

33 km

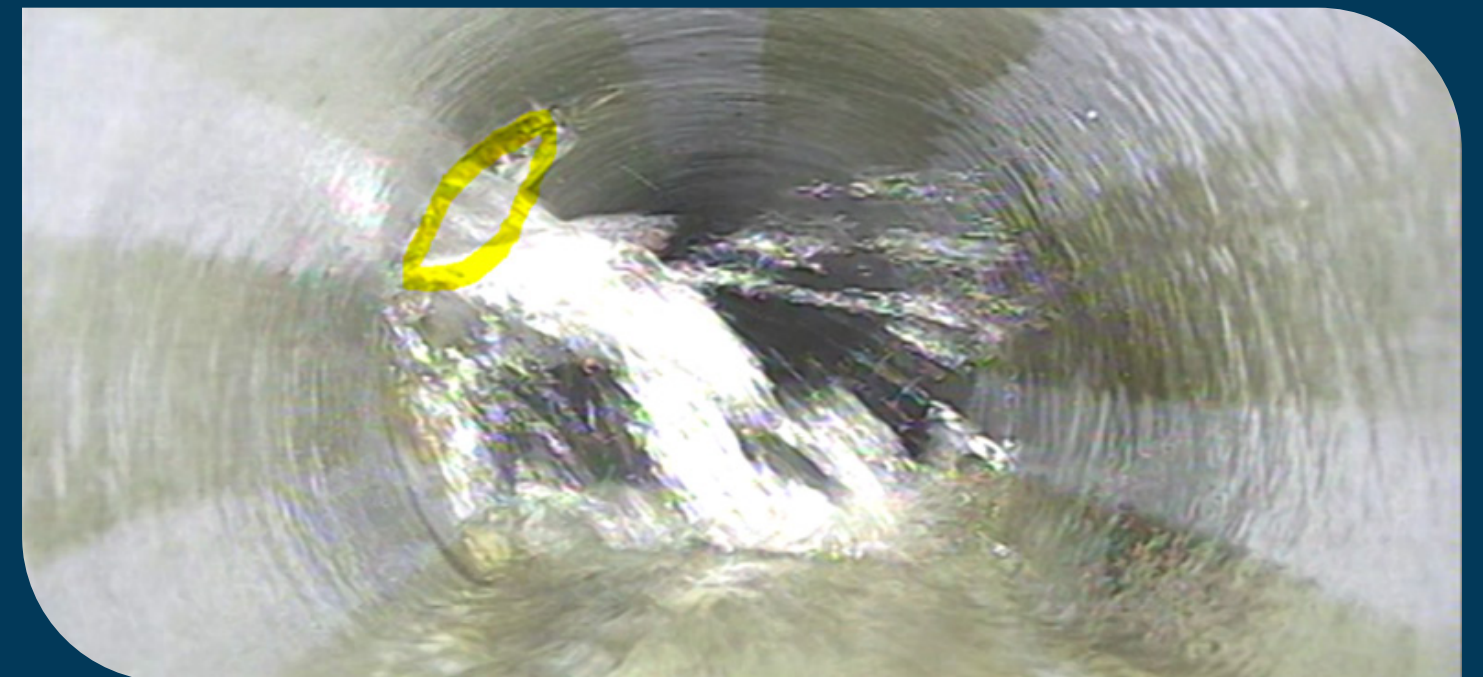
Of mainline CCTV inspection

25 km

Of smoke testing investigations

275

Wastewater lateral inspections



A crack allowing water is a source of inflow and infiltration from the wastewater lateral

In 2023/24, there were no large-scale WWMP-led capital projects completed; however, there were numerous small-scale rehabilitation repairs completed internally by Halifax Water Operations.

Fish Hatchery: 36 public side defects were repaired of 155 identified (23%).	Loon Lake: 13 public side defects of 23 identified (57%), and of 23 identified (57%) were repaired.	Eastern Passage: 10 public side defects were repaired, of 46 identified (22%).	Fairview, Old Clayton Park and Bridgeview: 20 public side defects, and of 28 identified (71%) were repaired.
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In addition to public side defects, 380 private side defects were identified in 2023/24. Further action is planned to rehabilitate private side defects in 2024/25.



Catch Basin smoke test



Manhole smoke test

Water Supply Enhancement Program

The J.D. Kline and Lake Major Water Supply Plants (WSPs) have reliably delivered high-quality water to Halifax Water customers for many years. However, aging infrastructure, changing source water conditions, and climate impacts have increasingly challenged the treatment processes at both WSPs. This is particularly evident at the J.D. Kline, where harmless natural taste and odour-causing compounds have periodically appeared in the water source and have been noticeable to customers.

To ensure a continued reliable supply of safe, high-quality drinking water and compliance with current and future regulatory requirements, the J.D. Kline and Lake Major WSPs will undergo capital renewal, upgrades, and enhancements over the next ten years. The Water Supply Enhancement Program (WSEP) consolidates numerous projects at J.D. Kline WSP and Lake Major WSP into one comprehensive program.

This integrated approach aims to minimize potential impacts on services and customers.

High-Level Goals of the WSEP:

- Review J.D. Kline and Lake Major WSPs for the next operating horizon, considering design life spans of 20-50 years.
- Add treatment process resiliency at both WSPs to adapt to evolving source water quality changes due to climate change, including increased levels of organic matter, biological activity, metals, minerals, algae, and algal by-products.

- Improve the reliability of both plants to meet future challenges related to water quantity or quality objectives.
- Execute the program efficiently and in a coordinated manner with shared design principles and strategic compatibilities to streamline long-term operations between the facilities.

Progress has been made on background work and concept design development for a new raw water pump station at Lake Major. Further investigations and discussions are ongoing for the two pretreatment and clarification projects at both facilities. This will ensure the current design efforts provide the most resiliency in terms of treatment, long-term operation, and plant safety. These are among the initial projects to be executed through the WSEP.



Source Water Quality Monitoring

The water quality of many lakes in Nova Scotia is changing due to lake recovery and climate change. Changing temperature and precipitation patterns, both timing and frequency, can also change source water quality. Lake Recovery is the process by which improved air emissions standards have reduced acid rain levels. As a result, water quality in lakes around Nova Scotia and Atlantic Canada is recovering from historical acidification. Changes are both chemical and biological in nature and include an increase in pH, increase in natural organic matter concentration, changes in concentration of metals and changes to the types of plants and animals our lakes can support.

At Halifax Water, lake recovery and climate change have resulted in changes in natural organic matter, pH (potential hydrogen), taste and odour (geosmin), colour, and algal activity. In 2023, climate change impacts were particularly notable with several severe weather events in the Halifax area. Low precipitation levels and dry conditions in the spring months led to the largest wildfires in Nova Scotia's history in May 2023, although no burning occurred in the watersheds surrounding Halifax Water drinking water supplies. This was followed by the wettest modern-day summer with severe rainfall and flood events experienced in June, July, and August resulting in record breaking precipitation levels. As a result of these significant precipitation events, natural organic matter levels measured in Lake Major and Pockwock Lake water supplies increased significantly and acutely in comparison to previous years.

Ensuring we have industry-leading source water monitoring approaches for both long-term and seasonal monitoring for harmful algal blooms caused by cyanobacteria (blue-green algae) continues to be a priority at Halifax Water to ensure the safety of our drinking water. Halifax Water has been collecting data for many years, enabling us to plan appropriately to ensure robust treatment to manage future water quality. Halifax Water continues to enhance and develop this important program through research partnerships with the Water Research Foundation and the Dalhousie/ Halifax Water NSERC Alliance "Partnership for Innovation in Climate Change Adaptation in Water & Wastewater Treatment". The evolution of Halifax Water's source water protection and seasonal algal monitoring programs ensures Halifax Water has industry-leading tools in place to assess risk, respond quickly to water quality changes and ensure continued delivery of high-quality drinking water for our customers.



Taking a source water sample

Get the Lead Out

Removing lead service lines (LSL) from the water system is a top priority for Halifax Water. The Halifax Water Get the Lead Out program goal is to replace all LSL by 2038.

Get the Lead Out Water Service Line Inventory as of April 1, 2024

Service Line Material	Public Portion (Owned by Halifax Water)	Private Portion (Owned by the property owner)
Lead	1,123	2,571
Unknown Material	2,146	5,213

Several initiatives are underway to improve inventory accuracy. These include a records review process, a machine learning model to predict service line material, and service box hydro-excavation to visually determine the water service line type.

Get the Lead Out Statistics as of April 1, 2024

Year	Public LSL Goal	Public LSLs (Actual)	Private LSL Goal	Private LSLs Replaced (Actual)
2023/2024	120	72	200	131

Resource constraints in operations for investigating service line material through hydro-excavation, led to delays in planning, tendering, and contracting replacements in 2023/24. A harsher winter also shortened the construction season. For these reasons fewer replacements occurred within the fiscal year.

Lead service line replacements were coordinated with HALIFAX's street paving and renewal schedule to minimize disruption to the community and be cost-effective for ratepayers. A limited number of individual replacements were also completed based on customer application to the program, with priority given

to customers who are most at risk from lead exposure. Replacements are completed at no cost to the property owner (up to a maximum of \$10,000, taxes included).

The figure above shows lead service line replacements as of April 1, 2024. The average cost of public replacement in 2023/24 was \$8,690, while the average cost of private side lead service line replacement was \$6,291.

Water Loss Control

Halifax Water owns, maintains and operates 1580 KM of water mains throughout our service area. Finding and fixing leaks reduces water loss and the related costs of treating and distributing that water. This work is done to ensure our customers continue to receive good value for water services.

American Water Works Association Manual 36, the industry standard in effective water loss control programs, identifies four key focus areas of a successful program:

- Speed and Quality of Repair
- Pressure Management
- Active Leakage Control
- Asset management, renewal, replacement

Halifax Water actively engages strategies and programs in all these areas. This includes two, and exciting projects have been completed in the past year.

Peninsula High Pressure Zone Management

A new control valve and meter were installed to better regulate pressures in the higher grounds of the Halifax Peninsula. Previously water

pressure was managed by a reservoir in Fairview. This added level of control allows pressures in the zone to be fine-tuned through basic pressure management, balancing customer needs and system management best practices. To further enhance the advance pressure management, the system where reacts based on demand, it will lower pressure during a low demand period, therefore lessing stress on the infrastructure in that zone.

Takadu - Active Leakage Control

Knowing a water main leak has occurred is the critical first step toward a timely repair and minimizing loss through an extended leak run time. Halifax Water has an extensive network of sensors monitoring flow, pressure and other details in the system. However, timely analysis and decision-making from the mountain of data can be challenging. Halifax Water is currently piloting Takadu, a software that applies advanced analytics to the data and can provide smart alerts to system anomalies within hours of their first occurrence. This software has identified and tracked numerous events since implementation, resulting in less water loss.

Burnside Operations Centre

In May 2023, Bird-Chandos Joint Venture (BCJV) was selected as the successful proponent for the new facility's first phase (design validation). The selection was based on a rigorous, fair, and transparent procurement process to find the best value for the utility's customers.

As an Integrated Project Delivery (IPD) contract, this agreement has multiple partners, including BCJV, Group2 Architecture, FBM, CBCL, and

Atlantica Mechanical Contractors.

This agreement is specific to the initial design validation phase. It will provide Halifax Water with confidence that this new facility can meet the desired services, function, and flow within the schedule and target cost. Pending approval from the NSUARB, the project is expected to begin in 2024.

IT Strategic Plan

Halifax Water is making strides in executing a Five-Year Information and Technology Plan for 2023-2028. All year one projects have started, and eleven projects have completed, including the following:

1. Customer relationship management software upgrade
2. Bill printing procurement
3. New document management software implementation
4. Insights data and analytics software procurement
5. Insights data warehouse Implementation
6. Insights dashboard reports
7. Computer maintenance management software upgrade
8. 2023 New technology business cases
9. New customer call system software implementation
10. New capital planning management software implementation
11. Radio Network Upgrade

The Information and Technology Plan instituted

a process, which generated sixty-seven new technology ideas. These ideas will help shape our future projects and investment plans. We are exploring and testing innovations like Microsoft Copilot, large language models, and automation software. Halifax Water is also starting to research and evaluate ocular mixed reality, digital twins, and building information systems.

The Cyber Security Program underwent an audit by the Municipal Auditor General (MAG), which resulted in forty-seven recommendations. The MAG expects Halifax Water to initiate 80% of these by September 2024. In response, our Cyber Security team developed a comprehensive action plan to address all recommendations by March 2025. As of the end of March 2024, Halifax Water has already started on 91% of the recommendations.

The Information and Technology Plan is designed to keep Halifax Water at the forefront of innovation, enhancing our operations and elevating our customer service.





Intelligent Water

The five-year Information and Technology Plan for 2023-2028 identified a need to create a data, analytics, and visualization program to boost efficiency in our daily operations and improve long-term planning. This program establishes the infrastructure to gather and integrate data from all parts of our organization, paving the way for more informed decision-making and enhanced performance.

In 2023/2024, the program generated corporate and operational dashboards providing information to:

- Monitor and target water loss,
- Monitor water quality,
- Monitor waste water parameter,
- Leverage customer metering data to see trends and alerts, and
- Monitor financial capital trends.

In addition, the program is leveraging automation software to minimize manual data entry, such as for source water sampling.

The next phase of the program involves procuring advanced data, analytics, and

visualization software. This software will enhance data accessibility and integration across the organization, supporting more efficient operations. The software will improve Halifax Water's ability to:

- Provide alerts on unusual activity in the water or wastewater systems, such as water quality parameters, water flow or pressure deviations, or uncontrolled wastewater discharges.
- Predict when maintenance is required on assets,
- Calculate future water demand by using consumption and demand forecasting using forecasting algorithms, and
- Improve customer interaction by enabling our customer care staff to have dashboards with unified views of data such as service requests, work orders, flow and pressure alerts, leakage, and sensor malfunction.

We will continue to advance new opportunities to use data, analytics, and visualization to improve operational efficiency

Customer Care Centre Performance

	Calls offered	Calls answered	Calls abandoned	Abandon rate	Calls answered within 20 seconds	Average speed of answer
2023/2024	68,349	49,156	19,493	29%	35%	483
2022/2023	63,264	60,194	3071	5%	71%	67
2021/2022	73,336	67,871	5465	7%	60%	106

Our customer care staff is dedicated to providing high-quality service, even at the most challenging times. If there is any doubt about this, then the fiscal 2023/24 challenges are a perfect example. They dealt with many challenges, including introducing new technology, the aftermath of severe weather events, and the failure of telephony software. While the team focused on customers, extended wait times and longer call durations were unavoidable.

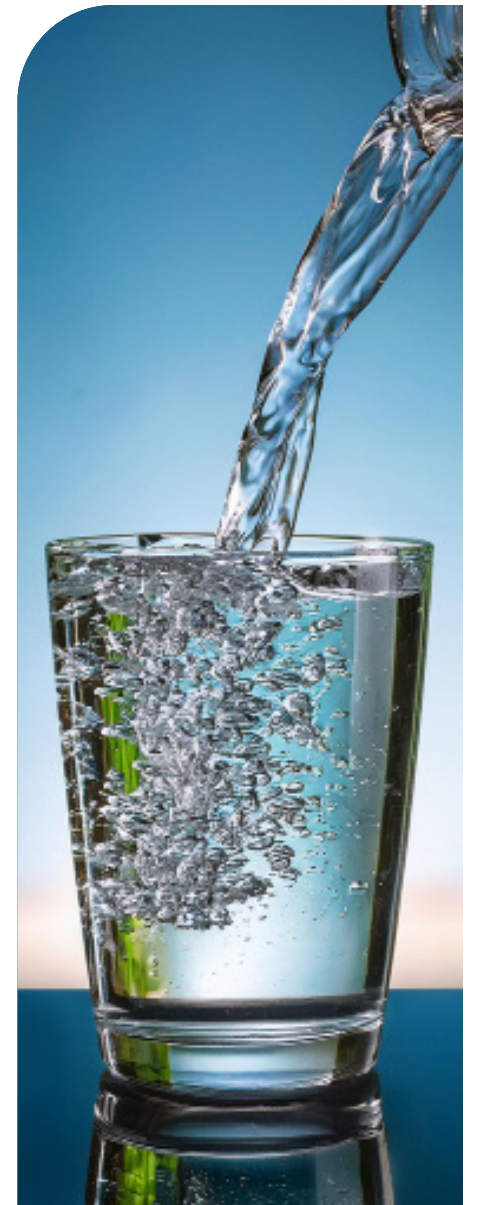
In July and August, historic flash floods hit HRM, significantly affecting our infrastructure and resulting in call volumes 22% higher than the same time last year. The complexity of issues and the information needed for responses compounded the response times.

While customer calls were

increasing, Halifax Water introduced a new ERP system in August 2023 which required additional time and resources typical of the challenges of implementing and learning a new system.

As these challenges were being addressed, the team experienced a short-term failure in its call centre telephony software in February 2024. This was a significant challenge to our ability to answer calls from customers. To improve our service, Halifax Water replaced the call centre software and created a platform to improve our ability to engage customers through email.

While there were some significant challenges in 2023/24, the team remained focused, finding solutions and supporting customers positively.

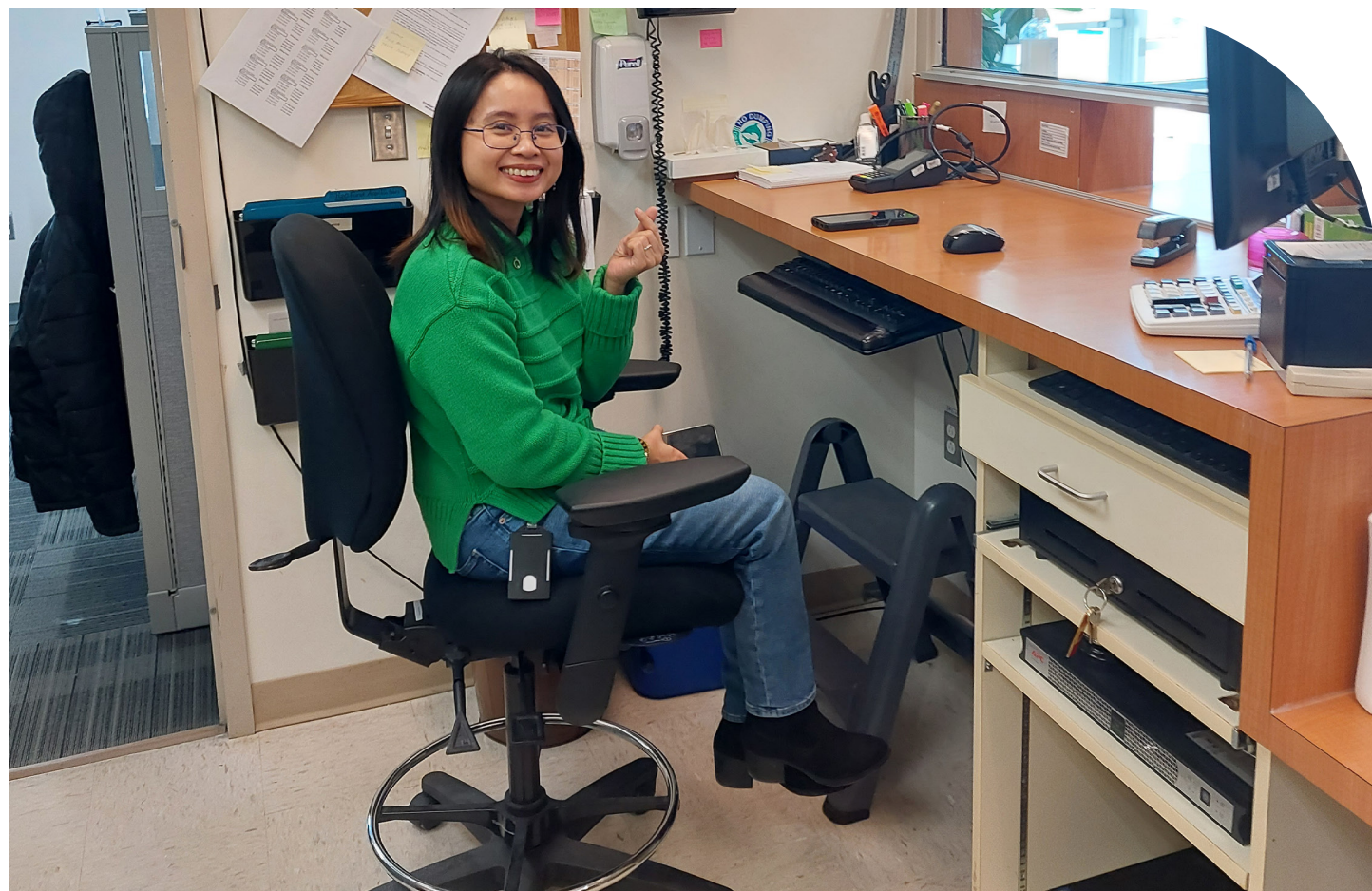


Customer Connect Project Update

Halifax Water continues to develop and improve its online portal Customer Connect. This is a part of an ongoing commitment to meet the needs of customers.

The following statistics were achieved at the end of fiscal 2023/24:

- 36,678 total users registered to date: an increase of approx. 4,500 users from March 2023.
- 5,449 customers registered during the fiscal year.
- A leak and high consumption alert system was introduced in the portal in December 2021.
- There were 4,695 leak alerts and 5,216 high consumption alerts sent to customers in the last fiscal year compared to 3,599 leak alerts and 4,242 high consumption alerts in the prior year.
- An average of 24,230 customers logged in each month, compared to 23,200 in the previous year.



Health, Safety & Environment

Climate Action Plan

In 2023/24, Halifax Water completed its first Climate Action Plan (CAP) to help the utility prepare for the increasing and changing forces of nature. The CAP provides a longer-term framework on how to prepare Halifax Water for climate resiliency, exercising fiscal responsibility and continuing to provide customers with high-quality water, wastewater, and stormwater services.

As part of the CAP development, Halifax Water's 'current emissions' were calculated for 2021, establishing a 'baseline' year of emissions against which future scenarios could be compared. The CAP modelled the existing and potential future scenarios for mitigation actions to reduce greenhouse gas emissions. A breakdown of emissions by source is shown in Figure 1. The modelling acknowledges the previous and ongoing mitigation activities that Halifax Water has performed and planned for the future.

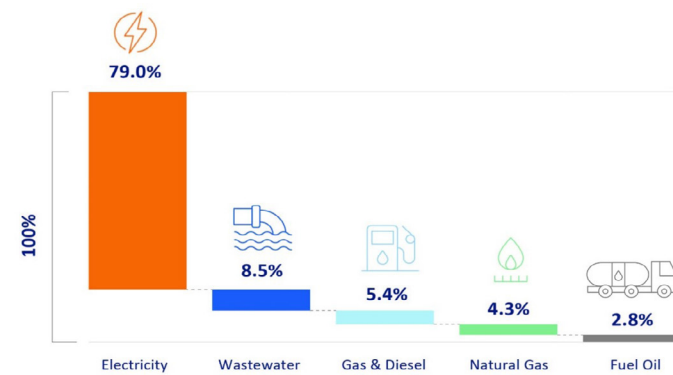


Figure 1. 2021 Emissions Sources for Halifax Water

The adaptation component of the CAP focused on outlining what is required for Halifax Water to be resilient to the impacts of climate change and ensure its assets can provide the required services in a changing climate. Eleven climate change hazards were evaluated based on assessments of historical events and future climate projections. These climate change

hazards will guide further risk assessments and adaptation actions.

The resulting CAP is a strategic document which will guide Halifax Water's mitigation and adaptation decisions to address the effects of climate change.



Environmental Management System Update

Halifax Water's Environmental Management System (EMS) is a comprehensive and structured approach to environmental stewardship. It comprises procedures, detailed records, and processes designed to address environmental issues while maintaining adherence to regulatory standards. The EMS is a commitment to operational sustainability and employee involvement in environmental responsibilities.

This past year, Halifax Water depots at Mann Street, Park Avenue, Neptune Crescent, and Bissett Road, were all successfully certified as ISO 14001. This milestone signifies that all Halifax Water facilities achieved an ISO-registered EMS, marking a unified approach in our environmental efforts.

Looking ahead, Halifax Water aims to incorporate the EMS into our Water Distribution and Wastewater & Stormwater Collections Systems. This strategic initiative will enhance the integration of EMS practices across the entire organization.



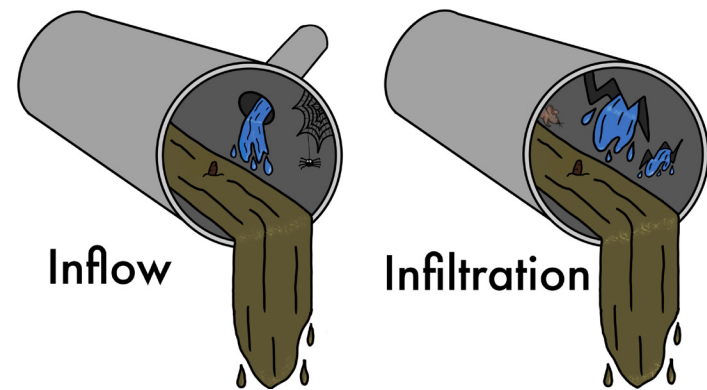


Environmental Engineering

Environmental Compliance

The Inflow & Infiltration (I&I) and Pollution Prevention (P2) Programs enforce the quantity and quality of discharge from customer connections into Halifax Water’s wastewater and stormwater systems.

Inflow & Infiltration (I&I) Reduction Program



Halifax Water staff work with private property owners to reduce I&I.

In 2023/24, the I&I team worked closely with the Engineering & Capital Infrastructure to ensure that private sources of I&I were being addressed during the planning and delivery of capital projects. The I&I team also began revising and refreshing its education material, culminating in developing a new website resource (<https://www.halifaxwater.ca/inflow-infiltration>) for customers with I&I related questions and concerns. Implementation of a Campus Program

has begun, and staff are working with campus properties to achieve compliance with Halifax Water’s regulations. Work also continued developing a New Service Account Compliance Program (NSAC), which will link private property I&I compliance with creating a new service account with Halifax Water.

P2 Program

The P2 Program identifies and addresses instances of noncompliant discharges entering Halifax Water’s wastewater and stormwater systems.

P2 staff inspected, investigated, and engaged 272 industrial, commercial, and institutional (ICI) customers in 2023/24. The P2 team responded to numerous spills and other non-compliant discharges into wastewater and stormwater systems. These discharges ranged from construction site dewatering to wastewater-to-stormwater cross-connections. The team successfully identified and resolved seven of these cross-connections in the past year. Construction dewatering cases have increased by 150% over last year. The P2 team also worked with HRM on improving the water quality at First Lake in Halifax by helping identify and rectify sources of quality impairment originating from the wastewater system.



Safety Update

Continuous improvement remains at the core of Halifax Water’s Safety Program in 2023/24. The restructured Joint Occupational Health and Safety Committee (JOHSC) and the new Safety Excellence Committee (SEC) function well. Monthly Operational Safety Meetings, co-led by Managers and Designated Safety Representatives, help raise knowledge and awareness of safety incidents and JOHSC / SEC activities across the organization. Another accomplishment through a collaboration with CUPE National was Halifax’s Water First Safety Training Symposium.

A gap analysis and preliminary work were completed as part of transitioning from the

current Operational Health and Safety (OHS) Manual to a structured Safety Management System (SMS—ISO 45001). This will continue in collaboration with the EMS ISO 14001 Program for the next few years.

The reporting and tracking of Near Miss (NM) incidents have increased and the lessons learned from these incidents are now being applied to assist in mitigating future risks before there is the potential for injuries. In 2023/24, there were 97 NM incidents, which has been the best result in reporting NMs. Our Lost Time Injury Frequency Rate was 2.38 and was below the target established in Halifax Water’s Corporate Balance Scorecard. For Reference see page 75.

Cogswell District Energy System



NSURB approved the Cogswell District Energy System (DES) in 2023. With this approval, Halifax Water can move forward using thermal energy recovered from effluent at the Halifax WWTF to provide heating and cooling services to new buildings proposed for the Cogswell redevelopment area.

This project aligns with Halifax Water's purpose, vision, and environmental objectives. It will significantly contribute to the goals of HALIFAX's "HalifACT 2050" initiative, providing long-term GHG emission reductions within the downtown core.

Over the past year, considerable progress has been made in the development of the district energy system. Most of the distribution piping system has been installed, with installation on track for completion in late 2024. Additionally, Halifax Water completed and received approval of its interim cost of service manual. Significant pre-design work has also been completed for the Energy Centre, with detailed design expected to start in 2025.

To date, the following milestones have been achieved for the DES:

- Completed an initial feasibility study for the DES



- Completed the detailed design of the linear infrastructure
- Developed a financial model and business case analysis for the new utility
- Evaluated the business case based on several operating and ownership scenarios
- Conducted a by-law review of other Canadian jurisdictions implementing similar district energy utilities
- Assisted HALIFAX in making charter changes to allow district energy within the municipality
- Supported the enactment of By-Law D-500, Respecting District Energy
- Secured project funding through the Investing in Canada Infrastructure Program
- Created a detailed DES information package for stakeholders and developers
- Received approval from the NSUARB for related capital expenditures and establishing a regulated district energy utility service within Halifax Water
- Finalized a cost-sharing agreement for the DES distribution piping system with HALIFAX

The following DES activities will be required prior to operation including:

- Complete detailed designs and construct the remaining DES infrastructure, including the DES and the Energy Transfer Stations (Establishment of the final DES regulations.
- Design of rate structure





Financial Overview

Halifax Water received a clean audit opinion on the financial statements for the fiscal year ended March 31, 2024. The financial statements are presented in accordance with International Financial Reporting Standards (IFRS). Halifax Water also produces financial information in the format required by the NSUARB) in accordance with its Water Utility Accounting and Reporting Handbook (Handbook).

The financial statements prepared under IFRS are used primarily for consolidation with the HALIFAX's financial statements. In contrast, the financial information prepared under the

Handbook is used for setting water, wastewater and stormwater rates.

Summary financial information is presented on the next pages.

The financial statements contain the independent auditor's report issued by Grant Thornton LLP, IFRS statements and schedules containing financial information prepared in accordance with the Handbook. The audited financial statements can be located at halifaxwater.ca/publications-reports

Financial & Regulatory Accountability

Summarized Statement of Earnings Comparison to Budget (Handbook)

	2023/24	2023/24	2022/23	Budget/Actual	Budget/Actual	Actual/Actual	Actual/Actual
	'000	'000	'000	\$ Variance	% Variance	\$ Change	% Change
Operating revenues	\$168,897	\$171,979	\$155,089	\$3,082	1.8%	\$16,890	10.9%
Operating expenditures	135,956	143,324	128,038	7,368	5.4%	15,286	11.9%
Earnings from operations	32,941	28,655	27,051	(4,286)	(13.0%)	1,604	5.9%
Financial and other revenues	990	900	1,352	(90)	(9.1%)	(452)	(33.4%)
Financial and other expenditures	36,247	36,934	36,163	687	1.9%	771	2.1%
Loss for the year	\$(2,316)	\$(7,379)	\$(7,760)	\$(5,063)	218.6%	381	(4.9%)

The key differences between the IFRS and Handbook financial statements are related to reporting requirements for the recognition of various expenditures as follows:

- The re-measurement of the defined benefit plans is not considered an expense for the Handbook and could result in either positive or negative impacts on income;
- Principal payments on long-term debt are an expense for the Handbook but not under IFRS;
- Depreciation expense on contributed assets is not an expense for the Handbook for water and wastewater assets. For stormwater assets, 25% of depreciation on contributed assets is included for the Handbook;
- Amortization of contributed capital is not considered revenue under the Handbook; and,
- Various depreciation adjustments, including the add-back of losses on the disposal of utility plant in service, componentization of assets and shorter useful lives, results in higher depreciation under IFRS than under the Handbook.

Reconciliation IFRS to Handbook Results

	2023/24	2022/23
	'000	'000
IFRS comprehensive earnings	\$20,203	\$46,951
Add non-cash pension expense	3,012	6,851
Subtract debt principal payments	(22,604)	(22,379)
Add depreciation expense on contributed assets	18,997	18,793
Subtract amortization of contributed capital	(18,997)	(18,793)
Add various depreciation adjustments	755	1,243
Subtract other comprehensive income gain	(8,745)	(40,426)
NSUARB Loss	\$(7,379)	\$(7,760)



Under IFRS, the comprehensive earnings are \$20.2M. After the adjustments described above, the loss for the year under the Handbook is \$7.4M. From a budget perspective, the loss was more due to operating expenditures being higher than budget in areas such as electricity, chemicals, contract services and salaries and benefits.

Water services loss of \$6.0M was \$2.9M higher than the prior year loss and \$4.2M more than budget. The primary difference from the prior year was an increase in operating costs for chemicals and electricity relating to price and usage increases, contract services, and an increase in salaries and benefits due to new positions and overtime. The increases in expenditures were offset by an increase in revenues resulting from rate and consumption increases.

Wastewater services loss of \$0.1M is less than the prior year loss by \$1.6M and \$0.2M lower than budget. The primary difference from the prior year was an increase in operating costs for chemicals and electricity relating to price and usage increases, and an increase in biosolids treatment costs. The increases in expenditures were offset by an increase in revenues resulting from rate and consumption increases.

Stormwater services loss of \$1.3M decreased from the prior year loss by \$1.7M and was \$0.7M more than budget. Operating revenues increased more than operating expenditures due to boundary expansion and higher rates. Expenditures increased due to higher contract services and traffic control relating to an increase in ditching work.

Operating Results by Service (Handbook)

	Budget	Actual	Actual	2023/24	2023/24	Actual/Actual	Actual/Actual
	2023/24	2023/24	2022/23	Budget/Actual	Budget/Actual	Actual/Actual	Actual/Actual
	'000	'000	'000	\$ Variance	% Variance	\$ Change	% Change
Water	\$(1,715)	\$(5,960)	\$(3,069)	\$(4,245)	247.5%	\$(2,891)	94.2%
Wastewater	70	(88)	(1,676)	(158)	(225.7%)	1,588	(94.7%)
Stormwater	(671)	(1,331)	(3,015)	(660)	98.4%	1,684	(55.9%)
Loss	\$(2,316)	\$(7,379)	\$(7,760)	\$(5,063)	218.6%	\$381	(4.9%)

REVENUE

Operating revenues increased from the prior year by \$16.9M. Consumption increased by 0.9% on a volumetric basis resulting in an increase in consumption revenue. Base charge revenue increased slightly due to new customers and rate increases. Overall, the main contributing factor to the increase in operating revenues was the approval of rate increases for water consumption and wastewater discharge effective April 1, 2023. Water rates increased from \$1.017 per cubic meter effective December 1, 2022 to \$1.128 per cubic meter and wastewater rates increased from \$2.189 per cubic meter effective December

1, 2022 to \$2.259 per cubic meter. Stormwater rates also increased effective April 1, 2023, contributing to the overall increase in operating revenues. Stormwater site generated charge revenue is \$1.7M more than the prior year due to the rate increases and the stormwater boundary expansion which also contributed to the \$2.0M increase in the stormwater right of way revenue.

The wastewater rebate, which is available to certain large customers whose wastewater is a lower proportion of their consumed water, increased \$0.5M from the prior year.

Operating Revenues

	Budget 2023/24 '000	Actual 2023/24 '000	Actual 2022/23 '000	2023/24 Budget/Actual \$ Variance	2023/24 Budget/Actual %Variance	Actual/Actual \$ Change	Actual/Actual % Change
Consumption revenue	\$108,392	\$111,933	\$99,288	\$3,541	3.3%	\$12,645	12.7%
Base charge revenue	34,356	34,516	33,967	160	0.5%	549	1.6%
Wastewater rebate	(1,629)	(1,999)	(1,532)	(370)	22.7%	(467)	30.5%
Metered sales total	141,119	144,450	131,723	3,331	2.4%	12,727	9.7%
Stormwater site generated charge	8,873	8,676	6,927	(197)	(2.2%)	1,749	25.2%
Stormwater right of way	6,515	6,520	4,475	5	0.1%	2,045	45.7%
Public fire protection	8,083	8,083	7,744	-	0.0%	339	4.4%
Private fire protection	1,652	1,698	1,398	46	2.8%	300	21.5%
Other operating revenue	2,655	2,552	2,822	(103)	(3.9%)	(270)	(9.6%)
Operating revenue total	\$168,897	\$171,979	\$155,089	3,082	1.8%	\$16,890	10.9%

EXPENDITURES

Operating Expenditures

Operating expenditures for 2023/24 are \$143.3M, an increase of \$15.3M or 11.9% compared to the prior year. The drivers of the increase include depreciation and amortization expense, chemical and electricity costs due to usage and price increases, contract services and traffic control costs, and salaries and benefits related to new positions and overtime.



Operating Expenditures

	Budget 2023/24 '000	Actual 2023/24 '000	Actual 2022/23 '000	2023/24 Budget/Actual \$ Variance	2023/24 Budget/Actual % Variance	Actual/Actual \$ Change	Actual/Actual % Change
Water supply and treatment	\$ 12,621	\$ 14,786	\$ 11,646	\$ 2,165	17.2%	\$ 3,140	27.0%
Water transmission and distribution	13,203	13,768	11,757	565	4.3%	2,011	17.1%
Wastewater collection	13,554	14,554	13,691	1,000	7.4%	863	6.3%
Stormwater collection	5,382	5,755	4,719	373	6.9%	1,036	22.0%
Wastewater treatment	25,065	24,782	23,420	(283)	(1.1%)	1,362	5.8%
Engineering and technology services	14,009	16,053	13,677	2,044	14.6%	2,376	17.4%
Regulatory services	5,060	5,532	4,434	472	9.3%	1,098	24.8%
Customer services	4,526	4,631	4,447	105	2.3%	184	4.1%
Corporate services	3,655	3,114	3,075	(541)	(14.8%)	39	1.3%
Administration services	6,197	6,263	5,578	66	1.1%	685	12.3%
Depreciation and amortization	32,684	34,086	31,594	1,402	4.3%	2,492	7.9%
Operating expenditures total	\$ 135,956	\$ 143,324	\$ 128,038	7,068	5.4%	\$ 15,286	11.9%

Financial and Other Expenditures

Reported financial and other expenditures totaled \$36.9M in 2023/24, an increase of \$0.8M or 2.1% compared to the prior year. The increase relates to increasing interest rates for long-term debt and long-term debt repayments.

Financial and other expenditures

	Budget 2023/24 '000	Actual 2023/24 '000	Actual 2022/23 '000	2023/24 Budget/ Actual \$ Variance	2023/24 Budget/ Actual % Variance	Actual/ Actual \$ Change	Actual/ Actual % Change
Interest	\$ 39	\$ 103	\$ 53	\$ 64	164.1%	\$ 50	94.3%
Interest on long term debt	7,051	7,276	6,851	225	3.2%	425	6.2%
Repayment on long term debt	22,191	22,604	22,379	413	1.9%	225	1.0%
Amortization of debt discount	202	222	227	20	9.9%	(5)	(2.2%)
Dividend/grant in lieu of taxes	6,589	6,589	6,524	-	0.0%	65	1.0%
Other	175	132	129	(43)	(24.6%)	3	2.3%
Financial and other expenditures total	\$ 36,247	\$ 36,926	\$ 36,163	\$ 679	1.9%	\$ 763	2.1%

Financial and Other Revenues

Reported financial and other revenues totaled \$0.9M in 2023/24, a decrease of \$0.5M or 33.4% compared to the prior year. The decrease relates to a prior year one-time revenue generating wastewater treatment contract with a visiting marine vessel.

Financial and other revenues

	Budget 2023/24	Actual 2023/24	Actual 2022/23	2023/24 Budget/ Actual	2023/24 Budget/ Actual	Actual/ Actual	Actual/ Actual
	'000	'000	'000	\$ Variance	% Variance	\$ Change	% Change
Interest	\$ 363	\$ 412	\$ 482	\$ 49	13.50%	\$ (70)	(14.5%)
Other	627	488	870	(139)	(22.17%)	(382)	(43.9%)
Financial and other revenues total	\$ 990	\$ 900	\$ 1,352	\$ (90)	(9.1%)	\$ (452)	(33.4%)

Regulated Activities

Activities regulated by the NSUARB show a loss of \$7.8M, representing an decrease of \$0.7M compared to the prior year loss.

Unregulated Activities

Earnings from unregulated activities decreased by \$0.4M from the prior year due to a prior year one-time revenue generating wastewater treatment contract with a visiting marine vessel.

Results by Activity

	Budget 2023/24	Actual 2023/24	Actual 2022/23	2023/24 Budget/ Actual	2023/24 Budget/ Actual	Actual/ Actual	Actual/ Actual
	'000	'000	'000	\$ Variance	% Variance	\$ Change	% Change
Regulated activities	\$ (2,790)	\$ (7,810)	\$ (8,554)	\$ (5,020)	179.9%	\$ 744	(8.7%)
Unregulated activities	474	431	794	(43)	(9.1%)	(363)	(45.7%)
Loss	\$ (2,316)	\$ (7,379)	\$ (7,760)	\$ (5,063)	(38.05%)	\$ 381	(4.9%)

Assets

Cash and cash equivalents

Cash and cash equivalents balance of \$44.0M is slightly lower than the prior year but remains healthy.

The liquidity on the balance sheet (ratio of current assets divided by current liabilities) is 1.16 (per NSUARB Handbook reporting).

Additions to Utility Plant in Service and Intangibles

	Cumulative '000
ERP Replacement Project	\$ 14,682
Gravity Sewer Albro Lake to Jamieson Street	8,858
Akerley Reservoir	5,343
Wastewater System Trenchless Rehab Program	2,140
Wastewater Fleet Upgrade Program	1,900
	32,923
All other projects:	
Water	11,320
Wastewater	11,211
Stormwater	1,738
Corporate	6,685
	30,954
Total additions	\$ 63,877

Liabilities

Debt

Debt continues to be an important funding source for Halifax Water's capital program. Total long-term debt is \$236.5M. New debt of \$40.0M was received in fiscal 2023/24, and repayments during the year were \$21.7M.

The debt service ratio of 17.50% is well below the maximum 35.00% ratio allowed under the blanket guarantee agreement with HALIFAX.

Utility Plant in Service

Utility plant in services assets, net of accumulated depreciation, are \$1,297.9M and is \$4.6M or 0.4% lower than last year. Total of new assets capitalized in the fiscal year were \$63.9M. At the end of the fiscal year, there was \$114.4M in capital work in progress, compared to \$79.4M last year.

Capital Work in Progress

	Cumulative '000
Chain Control Transmission Peninsula	\$ 8,812
Cowie Hill Reservoir	8,138
Burnside Drive Watermain Extension	5,172
South Park/Cathedral Lane Sewer Separation	5,022
William's Lake Pump Station	3,915
	31,059
All other projects:	
Water	19,975
Wastewater	25,966
Stormwater	9,727
Corporate	27,647
	\$ 114,374



Audited Financial Statements

ABBREVIATED FINANCIAL OVERVIEW (IFRS)

FINANCIAL OVERVIEW

Abbreviated Financial Overview (IFRS)

	March 31, 2024	March 31, 2023		
	'000	'000	\$ Change	% Change
ASSETS				
Current				
Cash and cash equivalents	\$ 44,021	\$ 44,596	\$ (575)	(1.3%)
Receivables	42,505	39,042	3,463	8.9%
Inventory and prepaids	4,099	4,799	(700)	(14.6%)
Total current assets	\$ 90,625	\$ 88,437	\$ 2,188	2.5%
Utility plant in services				
Cost	1,729,357	1,682,380	46,977	2.8%
Accumulated depreciation	(431,415)	(379,866)	(51,549)	13.6%
Net utility plant in service	1,297,942	1,302,514	(4,572)	(0.4%)
Intangible assets	35,989	22,807	13,182	57.8%
Capital work in progress	114,374	79,447	34,927	44.0%
Total non-current assets	1,448,305	1,404,768	43,537	3.1%
Regulatory deferral account	2,044	2,236	(192)	(8.6%)
Total assets and regulatory deferral account	\$ 1,540,974	\$ 1,495,441	\$ 45,533	3.0%
LIABILITIES AND EQUITY				
Payables, deposits and unearned revenue	\$ 38,333	\$ 34,331	\$ 4,002	11.7%
Long term debt	236,454	218,451	18,003	8.2%
Deferred contributed capital	947,308	938,258	9,050	1.0%
Employee benefit obligations	2,353	8,078	(5,725)	(70.9%)
Total liabilities	1,224,448	1,199,118	25,330	2.1%
Total equity	316,526	296,323	20,203	6.8%
Total liabilities and equity	\$ 1,540,974	\$ 1,495,441	\$ 45,533	3.0%
	2024	2023		
	'000	'000	\$ Change	% Change
EARNINGS AND COMPREHENSIVE EARNINGS				
Operating revenues	\$ 171,979	\$ 155,089	\$ 16,890	10.9%
Operating expenditures (excluding depreciation and amortization)	(112,250)	(103,295)	(8,955)	8.7%
Depreciation and amortization	(53,654)	(51,438)	(2,216)	4.3%
Loss from operations	6,075	356	5,719	1606.5%
Financial and other revenues	19,897	20,145	(248)	(1.2%)
Financial and other expenditures	(14,322)	(13,784)	(538)	3.9%
Earnings for the year	11,650	6,717	4,933	73.4%
Regulatory deferral account depreciation	(192)	(192)	0	0.0%
Re-measurement on defined benefits plans	8,745	40,426	(31,681)	(78.4%)
Total comprehensive earnings for the year	\$ 20,203	\$ 46,951	\$ (26,748)	(57.0%)

ABBREVIATED FINANCIAL OVERVIEW (HANDBOOK)

FINANCIAL OVERVIEW

Abbreviated Financial Overview (Handbook)

	March 31, 2024	March 31, 2023		
	'000	'000	\$ Change	% Change
ASSETS				
Current				
Cash and cash equivalents	\$ 44,021	\$ 44,596	\$ (575)	-1.3%
Receivables	42,505	39,042	3,463	8.9%
Inventory and prepaids	4,099	4,799	(700)	-14.6%
Total current assets	\$ 90,625	88,437	\$ 2,188	2.5%
Utility plant in services				
Cost	2,067,939	2,004,775	63,164	3.2%
Accumulated depreciation	(693,275)	(640,962)	(52,313)	8.2%
Net utility plant in service	1,374,664	1,363,813	10,851	0.8%
Capital work in progress	114,374	79,447	34,927	44.0%
Total non-current assets	1,489,038	1,443,260	45,778	3.2%
Regulatory deferral account	2,044	2,236	(192)	-8.6%
Total assets and regulatory deferral account	\$ 1,581,707	\$ 1,533,933	\$ 47,774	3.1%
LIABILITIES AND EQUITY				
Payables, deposits and unearned revenue	\$ 38,333	\$ 34,331	\$ 4,002	11.7%
Long term debt	236,454	218,451	18,003	8.2%
Deferred contributions	97,673	94,210	3,463	3.7%
Total liabilities	372,460	346,992	25,468	7.3%
Total equity	1,209,247	1,186,941	22,306	1.9%
Total liabilities and equity	\$ 1,581,707	\$ 1,533,933	\$ 47,774	3.1%
	2024	2023		
	'000	'000	\$ Change	% Change
SUMMARIZED STATEMENT OF EARNINGS				
Operating revenues	\$ 171,979	\$ 155,089	\$ 16,890	10.9%
Operating expenditure (excluding depreciation and amortization)	(109,238)	(96,444)	(12,794)	13.3%
Dividend/grant in lieu of taxes	(6,589)	(6,524)	(65)	1.0%
Depreciation and amortization	(34,086)	(31,594)	(2,492)	7.9%
Earnings from operations	22,066	20,527	1,539	7.5%
Financial and other revenues	900	1,352	(452)	-33.4%
Financial and other expenditures	(30,345)	(29,639)	(706)	2.4%
Loss for the year	\$ (7,379)	\$ (7,760)	\$ 381	-4.9%



Cost Containment

Cost containment continues to be a focus for Halifax Water and contributes to our ability to maintain affordable rates.

The process for cost containment called for the implementation of a number of recommended actions that would assist Halifax Water in addressing the NSUARB's request for a more rigorous approach to cost containment.

A formal cost containment program has been in place since 2013 and initiatives from fiscal 2013/14 to 2023/24 resulted in total annual savings of \$5.6M.

Cost containment initiatives have had the most significant impact in the areas of Human Resources, Facilities/Process Strategies, and Procurement Strategies. The pension plan re-design initiated in 2015/16 is one of the main contributors to cost containment savings. Annual

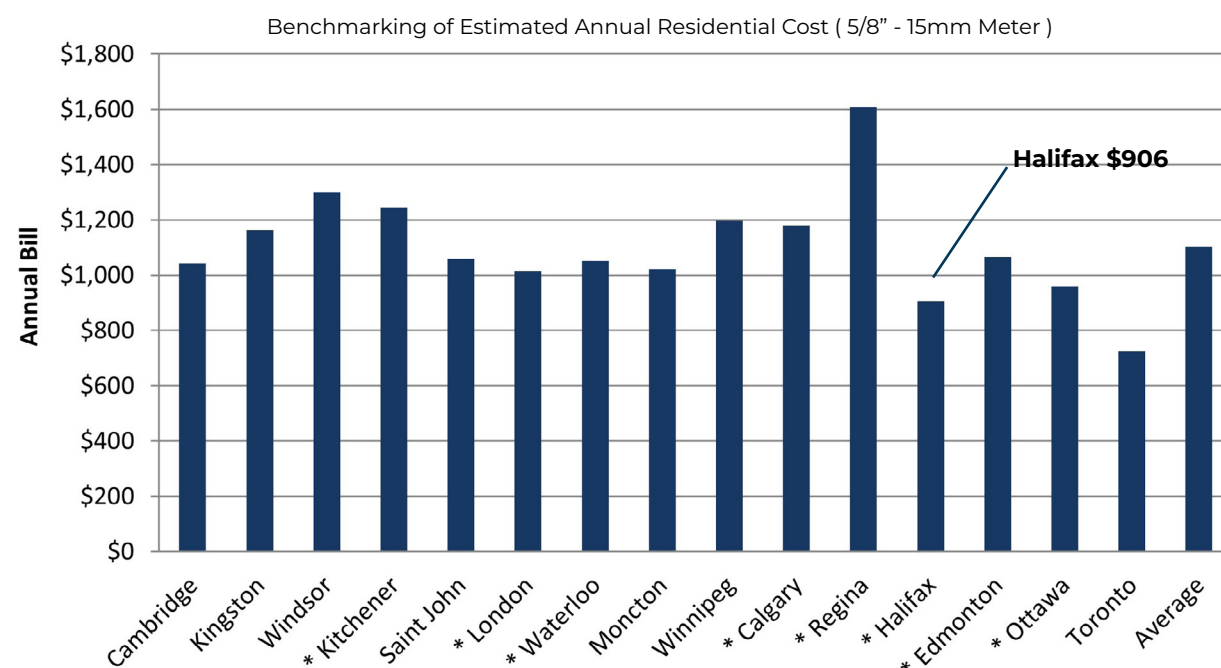
savings related to pension plan re-design are approximately \$1.7M.

Facilities/Process Strategies initiatives vary; and Halifax Water's Energy Efficiency Program is a significant contributor. Projects under this program represent savings of approximately \$1.6 million for 2023/24 and include energy savings programs such as:

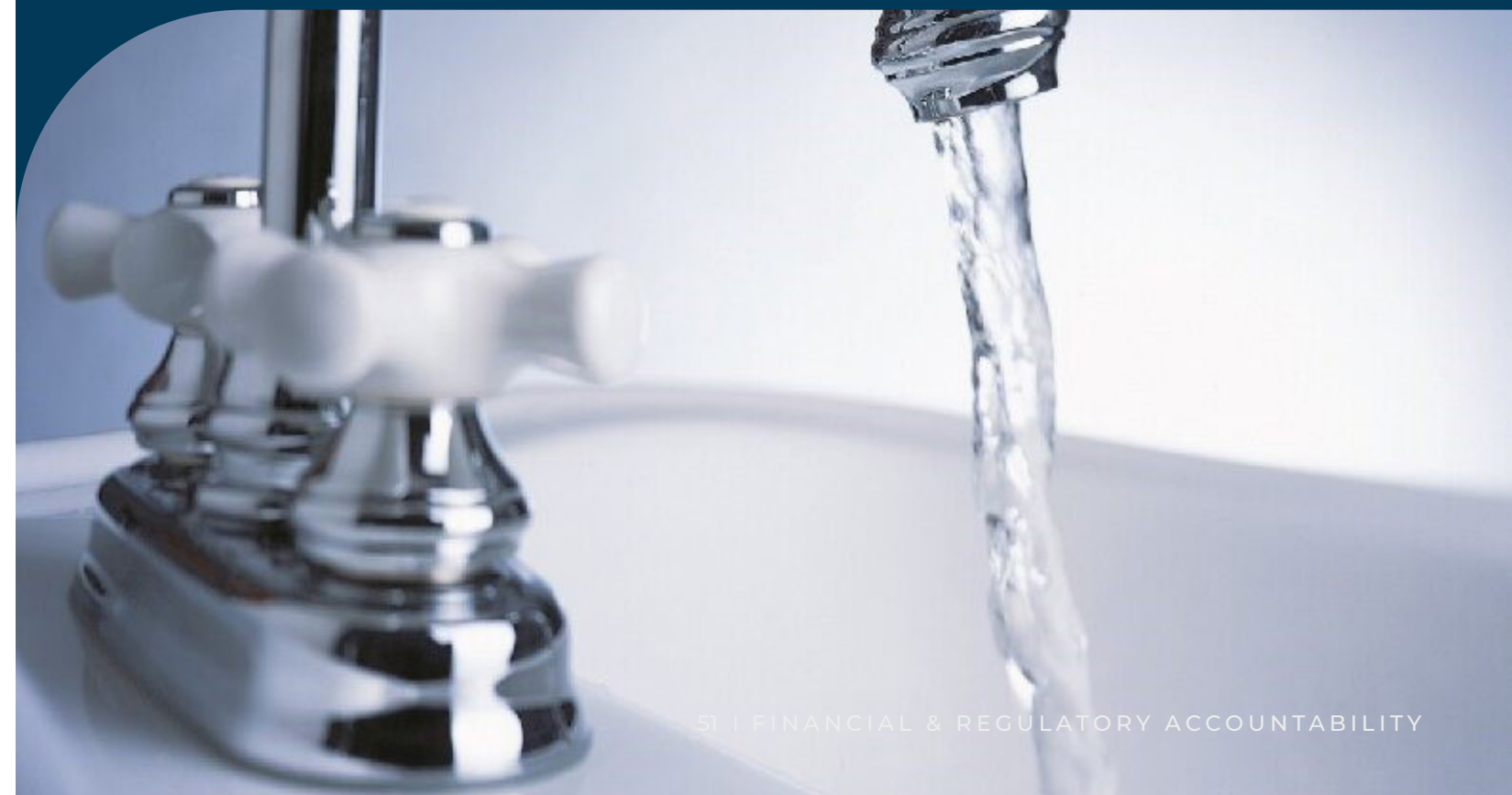
- The renewable natural gas (RNG) utilized at the Mill Cove and Timberlea Wastewater Treatment Facilities (WWTFs) (\$0.4M).
- The annual shutdown of the ultraviolet disinfection systems at the Harbour Solutions and Eastern Passage WWFT (\$0.3M).
- Heat recovery processes at the Harbour Solutions WWTFs (\$0.1M).
- Lighting upgrades at various other facilities.

In addition, there were new one-time and ongoing cost saving items of \$0.4M in Facilities/Process Strategies.

Benchmarking of Estimated Annual Residential Cost



* Includes Water, Wastewater and Stormwater; all others are Water and Wastewater only (Toronto is Water only)



Pension Plan Actuarial Valuation & Financial Position

All Halifax Water employees are members of one of two defined benefit pension plans.

Employees that transferred from the Halifax Regional Municipality (HRM), of which 43 remain, are members of the HRM Pension Plan. Halifax Water is obligated to make contributions for these employees' service to the HRM Pension Plan.

For all other employees, Halifax Water maintains the Halifax Regional Water Commission Employees' Pension Plan (HRWC Employees' Pension Plan). The financial results of the pension plan are audited each year at December 31st. Abbreviated results of the audited financial statements are shown below:

Statement of Financial Position	December 31, 2023 '000	December 31, 2022 '000
Assets	\$ 191,209	\$ 175,240
Liabilities	(164,295)	(154,048)
Surplus	\$ 26,914	\$ 21,192
Surplus %	116.4%	113.8%

The Plan's funded ratio has increased from 113.8% to 116.4% since December 31, 2022, but still recording a decrease from the last actuarial valuation at January 1, 2022. The decrease is primarily related to volatile market conditions throughout 2022 resulting in, lower than expected gains on investments. The markets started to show some recovery in late 2022 and have continued to show favourable returns throughout 2023, which contributed to the

increase in the funded ratio.

In 2023, the net assets available for benefits increased to \$191.2M from \$175.2M in 2022. The increase was mainly due to revenue and contributions flowing into the plan amounting to more than the benefit payments and expenses coming out of the plan throughout the year. Abbreviated statement of changes in net assets available for benefits is shown below:

Net Assets Available for Benefits at the Year ended December 31

	2023 '000	2022 '000
Revenue	\$ 15,239	\$ 155
Contributions	7,973	6,653
Expenses	7,243	6,204
Increase in net assets available for benefits	\$ 15,969	\$ 604

The financial statements for the HRWC Employees' Pension Plan are audited by Grant Thornton LLP and can be located at halifaxwater.ca/publications-reports. The financial statements contain the independent auditor's report issued by Grant Thornton LLP.



Cogswell Redevelopment Update

The Cogswell District Project (CDP) is a municipal-led initiative designed to connect downtown with the north end and waterfront, creating a stronger, more inclusive network of communities. The project is entering its fourth year of construction. Phase II of construction is now underway. Additional temporary roads have been constructed to facilitate north-south bound traffic through the site. Albemarle Street infrastructure has been completed and reopened to flow through traffic in June 2024. New water, wastewater, stormwater and district energy (DES) mains are being installed along the new Barrington Street as they remove the overpasses and ramps.

The Nova Scotia Utility and Review Board approved \$19,500,000 for the CDP Water, Wastewater & Stormwater infrastructure. The CDP has an overall estimated cost of approximately \$122.6M and is expected to span fiscal years 2021-22 to 2025-26. HALIFAX have finalized a cost-sharing arrangement for our customers.



Regional Development Charge Stakeholder Engagement

Halifax Water oversees the development and collection of water and wastewater Regional Development Charges (RDCs). These fund upgrades to regional water and wastewater systems to facilitate projected population growth in the servicing boundary. The Regional Development Charge program is cost-neutral and provides central services for the projected growth of HALIFAX.

The table below shows the cumulative accounting of all RDC received and invested in infrastructure at the end of the fiscal year on March 31, 2024.

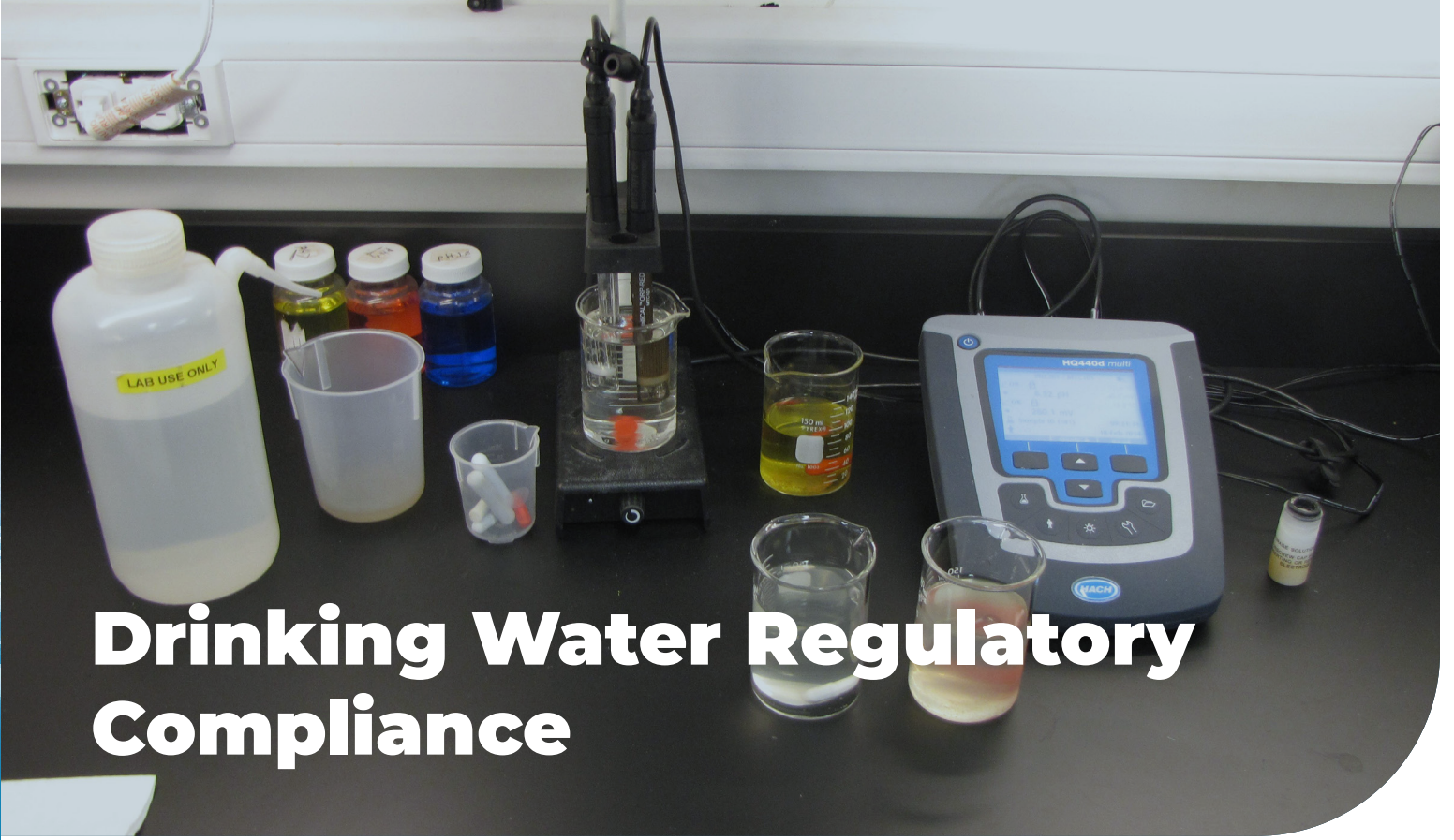
Collections and Expenditures

Regional Development Charge (RDC)	Regional Development Charges Collected	Interest	Merchant Fees	RDC Funds Invested in Infrastructure	Remaining RDC Funds available for Future Investment in Infrastructure
Water	\$16,202,966	\$362,332	\$70,027	\$15,836,363	\$658,908
Wastewater	\$119,348,998	\$4,116,583	\$216,694	\$30,877,337	\$92,371,550
Grand Total	\$135,551,964	\$4,478,916	\$286,721	\$46,713,700	\$93,030,458

The 2019 application to update the RDC's was approved in April 2021. The approval allows annual Consumer Price Index (CPI) adjustments, with five-year updates submitted to the NSUARB. A two-year rate freeze was mandated by the Province (Section 236A HRM Charter) and expires on November 9, 2025—any shortfalls in the RDCs resulting from the this rate freeze will be recovered in the next review from the development group and will not be subsidized by the general rate base.

Additionally, Halifax Water gained approval from the NSUARB this fiscal year to apply merchant fees against the RDC.

Halifax Water is directed to file its next RDC review application with the Board by March 31, 2025. Halifax Water is coordinating with HALIFAX to update their infrastructure requirements to support projected growth as they update the Regional Plan.



Drinking Water Regulatory Compliance

Providing our customers with safe, reliable, affordable, high-quality drinking water requires investment in infrastructure, research, and robust quality assurance and quality control programs. Halifax Water has made considerable investments in all of these areas.

To optimize quality control, we maintain ISO 14001 EMS Registration at the J. D. Kline (Halifax), Lake Major (Dartmouth), Bennery Lake (Halifax Airport), WWTF and smaller community water supply plants.

Halifax Water undertakes a comprehensive water testing program with weekly bacteriological testing at 63 locations within urban Halifax and at each of the small systems.

Over 3,300 tests are conducted each year for total coliform bacteria and E.coli. Halifax Water consistently achieves results where 99.9% of samples are absent of bacteria, as shown below:

Drinking Water Compliance Summary

Total Coliform Sample Results April 2023 to March 2024		
Systems	% Absent	# of Samples
Pockwock	100.0%	1427
Lake Major	99.9%	1196
Bennery	100.0%	162
Five Islands	100.0%	104
Silver Sands	100.0%	108
Middle Musquodoboit	99.0%	104
Collins Park	100.0%	104
Bomont	100.0%	104
Totals		3309
Absent		3305
Present		4
All Sites - % Absent		99.88%

Wastewater Treatment Regulatory Compliance



As a provider of wastewater services, Halifax Water's role is protecting the environment. This includes monitoring all wastewater system flows and ensuring that treated effluent released into the environment from facilities meets regulatory requirements outlined in our operating permits and Federal Regulations.

To optimize quality control, we maintain ISO 14001 EMS Registration at each facility.

Wastewater treatment facilities in Nova Scotia are regulated by Nova Scotia Environment and Climate Change (NSECC). They set effluent discharge limits for all wastewater facilities, outlined in each facility's Approval to Operate. The limits define specific maximum concentrations of parameters to be measured at each facility, such as Carbonaceous Biochemical Oxygen Demand (cBOD – the amount of material in water which will consume oxygen), Total Suspended Solids (TSS –the amount of particulate matter in the water), and E.Coli (the amount of bacteria present normally associated with wastewater). For some facilities, parameters such as nutrients (nitrogen and phosphorus, which cause excess growth of algae and plants) or pH (a measure of acidity) are also regulated.

Halifax Water is also regulated through Federal Regulations (Environmental Canada and Climate Change and the Wastewater Systems Effluent Regulations (WSER)). The WSER outlines effluent discharge limits for all wastewater facilities that discharge greater than an average daily effluent volume of 100 m³. The limits define specific

maximum concentrations of TSS (25 mg/L) and cBOD (25 mg/L) to be measured at each facility, unless a Transitional Authorization has been approved. Parameters such as total chlorine and ammonia could be considered hard to fish at certain concentrations and are also regulated.

Halifax Water oversees five large Harbour WWTFs and nine smaller, Community-based WWTFs.

Compliance for the larger WWTFs is assessed based on monthly averages, and the smaller plants are assessed on a quarterly basis, and the smaller plants are assessed on a quarterly basis per each regulation (provincial and federal). North Preston and Wellington are assessed on an annual average. There continues to be an improvement in compliance at the five larger WWTFs, with Herring Cove and Eastern Passage being fully compliant for the year. Mill Cove experienced operational issues caused by heavy precipitation events in March but maintained compliance throughout the rest of the year. Dartmouth has improved in compliance compared to previous year. Operational improvements were underway at Halifax from April to November of last year and were the reason for some of the non-compliance results throughout the year. All smaller systems were compliant for the year other than Lockview-MacPherson, which experienced flow-related issues in Q1 and Q3.

Wastewater Treatment Facility Compliance Summary

Q1 - April to June 2023									
WWTF	CBOD5	TSS	E. coli	Phosphorus	Ammonia	pH	Dissolved Oxygen	Chlorine	Toxicity Pass
Aerotech	3	1	10	0.09	0.1	7.0	7.8	N/A	YES
Frame	2	1	10	N/A	N/A	7.2	N/A	N/A	N/A
Lakeside-Timberlea	5	15	13	1	2		N/A	0.10	YES
Lockview-MacPherson	5	10	22	0.3	8.7	6.9	N/A	N/A	N/A
Middle Musquodoboit	15	9	100	N/A	N/A	7.3	N/A	N/A	N/A
North Preston	3	2	14	0.5	0.1	6.9	N/A	N/A	N/A
Springfield	4	8	16	N/A	N/A	6.8	N/A	N/A	N/A
Steeves (Wellington)	2	2	10	0.1	0.1	6.9	N/A	N/A	N/A
Uplands Park	10	11	13	N/A	N/A	6.8	N/A	N/A	N/A

Q2 - July to September 2023									
WWTF	CBOD5	TSS	E. coli	Phosphorus	Ammonia	pH	Dissolved Oxygen	Chlorine	Toxicity Pass
Aerotech	3	1	10	0.05	0.1	6.9	7.7	N/A	YES
Frame	2	1	10	N/A	N/A	6.9	N/A	N/A	N/A
Lakeside-Timberlea	4	13	20	1	1	7.1	N/A	0.10	YES
Lockview-MacPherson	6	11	34	0.6	5.3	6.5	N/A	N/A	N/A
Middle Musquodoboit	5	6	33	N/A	N/A	6.7	N/A	N/A	N/A
North Preston	2	3	10	0.4	0.1	6.7	N/A	N/A	N/A
Springfield	3	13	16	N/A	N/A	6.6	N/A	N/A	N/A
Steeves (Wellington)	2	1	10	0.1	0.1	6.8	N/A	N/A	N/A
Uplands Park	5	9	13	N/A	N/A	6.6	N/A	N/A	N/A

Q3 - October to December 2023									
WWTF	CBOD5	TSS	E. coli	Phosphorus	Ammonia	pH	Dissolved Oxygen	Chlorine	Toxicity Pass
Aerotech	3	1	10	0.04	0.1	7.2	8.1	N/A	YES
Frame	2	1	10	N/A	N/A	6.9	N/A	N/A	N/A
Lakeside-Timberlea	4	14	12	1	1	7.3	N/A	0.10	YES
Lockview-MacPherson	3	10	242	0.6	0.4	6.8	N/A	N/A	N/A
Middle Musquodoboit	5	5	25	N/A	N/A	7.0	N/A	N/A	N/A
North Preston	4	21	13	0.5	0.1	6.6	N/A	N/A	N/A
Springfield	4	14	20	N/A	N/A	6.7	N/A	N/A	N/A
Steeves (Wellington)	2	1	10	0.1	0.1	7.1	N/A	N/A	N/A
Uplands Park	7	7	111	N/A	N/A	6.8	N/A	N/A	N/A

Q4 - January to March 2024									
WWTF	CBOD5	TSS	E. coli	Phosphorus	Ammonia	pH	Dissolved Oxygen	Chlorine	Toxicity Pass
Aerotech	3	1	10	0.03	0.1	7.1	8.5	N/A	YES
Frame	2	1	10	N/A	N/A	7.0	N/A	N/A	N/A
Lakeside-Timberlea	4	15	21	1	2	6.9	N/A	0.10	YES
Lockview-MacPherson	7	7	175	0.4	1.8	6.6	N/A	N/A	N/A
Middle Musquodoboit	5	6	49	N/A	N/A	7.0	N/A	N/A	N/A
North Preston	2	4	10	0.6	0.4	6.8	N/A	N/A	N/A
Springfield	3	4	13	N/A	N/A	6.8	N/A	N/A	N/A
Steeves (Wellington)	4	2	10	0.1	0.1	7.1	N/A	N/A	N/A
Uplands Park	7	6	42	N/A	N/A	6.9	N/A	N/A	N/A

 Specific parameter limit achieved
 Specific parameter limit not achieved

NOTES & ACRONYMS:

CBOD - Carbonaceous 5-Day Biochemical Oxygen Demand

TSS - Total Suspended Solids

TRC - Total Residual Chlorine

S / W - Summer / Winter compliance limits

Toxic may indicate only a single sample

NSECC requires monthly averages be less than the NSECC Compliance Limit for each parameter at Dartmouth, Eastern Passage, Halifax,

Herring Cove, Mill Cove

NSECC requires quarterly averages be less than the NSECC Compliance Limit for each parameter at Aerotech, Lockview, Middle Musquodoboit,

Belmont, Frame, BLT, Uplands, Springfield

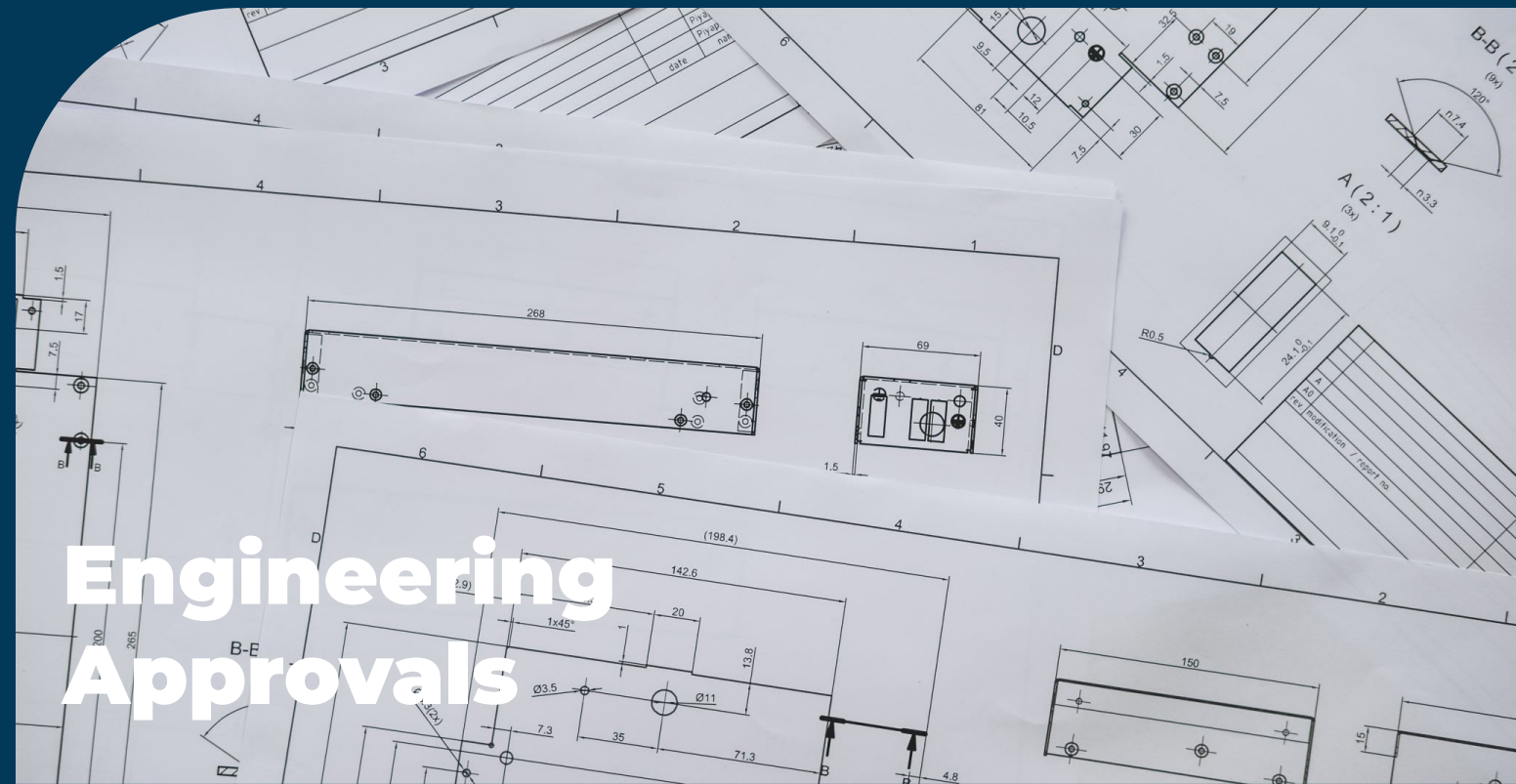
NSECC requires an annual average be less than the NSECC Compliance Limit for each parameter at North Preston, Steeve

Wastewater Treatment Facility Compliance Summary

April 2023 to March 2024

WWTF	23-Apr					23-May					23-Jun				
	CBOD5	TSS	E.Coli	pH	Toxicity Pass	CBOD5	TSS	E.Coli	pH	Toxicity Pass	CBOD5	TSS	E.Coli	pH	Toxicity Pass
Halifax	65	74	0*	7	YES	58	56	72,779	7	YES	44	46	18,696	7.0	YES
Herring Cove	25	17	0*	6.8	N/A	24	16	20	6.7	YES	23	17	23	7.0	N/A
Dartmouth	51	28	0*	6.7	YES	50	17	105	6.8	YES	39	14	21	6.8	YES
Eastern Passage	8	10	0*	7.1	N/A	7	8	38	7.2	YES	8	10	73	7.1	N/A
Mill Cove	15	15	14	6.7	N/A	13	15	12	6.6	YES	9	6	23	6.6	N/A
23-Jul					23-Aug					23-Sep					
Halifax	27	17	3,528	6.7	YES	24	14	2,908	6.9	YES	46	52	40,124	7.0	YES
Herring Cove	27	18	14	6.9	N/A	16	12	15	6.9	YES	18	13	48	7.1	N/A
Dartmouth	29	20	73	6.8	YES	28	21	190	6.7	YES	30	11	116	6.8	YES
Eastern Passage	4	5	18	7	N/A	4	5	28	6.6	YES	6	8	54	6.9	N/A
Mill Cove	8	7	11	6.7	N/A	5	5	18	6.6	YES	13	16	10	6.5	N/A
23-Oct					23-Nov					23-Dec					
Halifax	62	61	22,448	6.9	YES	48	45	N/A	6.9	YES	51	69	N/A	6.8	YES
Herring Cove	18	11	33	7	N/A	19	11	N/A	6.9	YES	14	8	11	6.6	N/A
Dartmouth	39	17	164	6.8	YES	46	45	N/A	6.8	YES	38	30	N/A	6.7	YES
Eastern Passage	6	6	79	7.2	N/A	4	5	N/A	7.2	YES	9	6	N/A	6.9	N/A
Mill Cove	14	15	86	6.4	N/A	16	15	28	6.5	YES	15	17	34	6.6	N/A
24-Jan					24-Feb					24-Mar					
Halifax	46	51	N/A	6.8	YES	30	21	N/A	6.8	YES	29	28	N/A	6.8	YES
Herring Cove	31	30	N/A	6.8	N/A	20	12	N/A	6.8	YES	15	12	N/A	6.7	N/A
Dartmouth	37	21	N/A	6.8	YES	46	35	N/A	6.7	YES	35	37	N/A	6.7	YES
Eastern Passage	8	6	N/A	6.9	N/A	14	14	N/A	6.8	YES	12	11	N/A	6.7	N/A
Mill Cove	16	20	13	6.7	N/A	18	18	19	6.6	YES	27	45	67	6.7	N/A

Compliance Achieved (< NSE Limit)
 Compliance not Achieved (> NSE Limit)



Engineering Approvals

The Engineering Approvals group is focused on adhering to the Halifax Water Design Specifications, the Supplementary Standard Specification, and the Schedule of Rates, Rules and Regulations regarding connections to and expansions of the Halifax Water systems. The administration of the new service connections includes the administration of the Regional Development Charge.

In 2023/24, the Engineering Approvals group processed:

Application Type	2023/2024	2022/2023	2021/2022
Water Permit Reviews	4731	4402	3538
Water Permit Approvals	866	900	1223
Subdivision Reviews	232	191	166
Metres of New Water Main	3095	4861	3185
Metres of New Wastewater Main	2435	4694	4037
Metres of New Stormwater Main	2470	6562	3247
Demolition Permit Reviews	137	155	154
Clearance Letters	33	28	30
Tender Reviews	70	88	85
New Backflow Prevention Applications	168	107	115
Backflow Prevention Devices Active	6361	5993	5812



People

Diversity, Equity & Inclusion

Diversity, Equity, and Inclusion (DEI) continues to be a strategic priority at Halifax Water as we create and promote a workplace culture representative of the communities in which we live and work.

During this past fiscal year, we successfully rolled out and implemented the Fair Hiring and DEI policies. Both policies demonstrate staff's ongoing commitment to ensuring that Halifax Water is an inclusive workplace.



The DEI Committee continued to expand its membership to represent all equity-seeking groups within Halifax Water better. This will be an on-going initiative to ensure the committee is well positioned to move the strategy forward.

Employees gathered in person to participate in a ceremony for National Day for Truth and Reconciliation. This was an important step for the organization to help raise awareness of the intergenerational impacts that residential schools have had on individuals, families, and communities and to promote the message that "Every Child Matters". This day honours the children who never returned home and Survivors of residential schools, as well as their families and communities. Public commemoration of the

tragic and painful history and ongoing impacts of residential schools is a vital component of the reconciliation process.

Halifax Water held virtual sessions to celebrate International Women's Day and employees were encouraged to share their personal stories. We learned about the barriers women face in the workplace, heard success stories about breaking down glass ceilings, and supported the significance and importance of empowering female leadership and ensuring women have a seat at every table. It was an important celebration for all women at Halifax Water. This year, some of Halifax Water's female employees represented the organization at the "Spotlight on Local Innovation" event, presented by the Women in Engineering Committee.

As we move into another three year implementation strategy, we look forward to continuing to stretch to meet our DEI goals.



Talent Management

Halifax Water is committed to enhancing the overall employee experience for all current and future employees. We emphasize 'moments that matter' during the employee lifecycle, whether it is their first day as a new hire or their last day upon retirement.

There are continued concerns related to the attraction of new employees, largely due to the impacts of the Global Pandemic. We are re-aligning the People & Culture team to better serve the organization in the future and have started to generate proactive talent acquisition strategies.

The turnover rate for the 2023/2024 fiscal year was 8.03%, resignation, an overall increase from 7.74% during the previous fiscal year. This is

a combination of retirements and voluntary resignations.

The Collective Bargaining process began in 2022/23 and carried over to the new fiscal year and will continue into 2024/25, with negotiations underway.

We recognize the need to improve Halifax Water's Talent Management programs and have started building a strategy focused on retention, succession planning, employee development, and effective feedback. We are also committed to completing an analysis of the utility's compensation practices and making enhancements to the non-union performance management tool.

One Water Excellence Awards

This year was the second year of the Halifax Water One Water Excellence Awards. In addition to our highly regarded Carolyn Bruce Excellence in Customer Service Award, we have added three additional award categories to recognize employees who have made significant contributions to Safety & Environment, True Value and Team Spirit.



Carolyn Bruce Customer Service Excellence Award

In 2012, Halifax Water introduced a new Customer Service Excellence Award in honour and memory of Carolyn Bruce. This award was created to recognize the path that Carolyn forged for exemplary Customer Service. Carolyn was a dedicated employee of 22 years, starting out as a Customer Service Representative and moving her way up to Customer Service Supervisor. Carolyn passed away in 2011 and left a legacy of passionate, dedicated service to Halifax Water.

We continue to recognize employees who demonstrate this same passion and dedication to Customer Service. Each year, Halifax Water takes nominations from colleagues who wish to recognize their coworkers for this award. Considerations for this award include the number of times an employee is recognized for providing excellent customer service to our external customers, the breadth and depth of customer service (impact to the Utility), customer service over and above the call of duty (beyond their job requirement and a pattern of exemplary customer service over an extended period-of-time.

Following Carolyn's legacy in 2023, Halifax Water recognized Jennifer Hiscock for this excellent Customer Service and presented her with the Carolyn Bruce Customer Service

Excellence Award. Jennifer is Halifax Water's Senior Customer Care Representative and has been a long-term dedicated employee who has demonstrated an excellent work ethic. Her name was added to the perpetual plaque at 450 Cowie Hill Road, along with the others before her, as a reminder of Halifax Water employees' passion and dedication.





Halifax Water Service Awards

Employee commitment and dedication of service means a great deal to Halifax Water and to show that appreciation Halifax Water has a long-standing tradition of recognizing employees for their length of service with the organization. Awards categories to recognize this year's service. As per Halifax Water's Service Award policy employees who are eligible will have their years of continuous service completed by the end of the calendar year in which the award was received. In addition to the service awards listed above Halifax Water also recognizes employees

with five years of continuous service.

In 2023, we recognized the following employees for reaching their service milestone! Awards categories from 5 years to 30 years were presented to employees at the 2023 Service Awards Banquet & Holiday Party held at the Westin Nova Scotian Hotel on Friday, December 15th.

30 YEARS OF SERVICE Engineering and Technology Services

Derek McElmon
Stephen Skinner

Operations

Colette Cleary
Derrick Langille
Murray Pictou
Cedric Williams

Regulatory Services

Garry Oxner

Corporate Services

Michelle Comeau
Peter Johnson

25 YEARS OF SERVICE

Corporate Services

Corey Whalen

Engineering and Technology Services

Reid Campbell

Operations

Sherry Parsons

20 YEARS OF SERVICE

Administration

Lorna Skinner

Corporate Services

Brittany Pottie

Operations

David Balcom
Todd Connolly
Wendell Hebert
John Keirstead

15 YEARS OF SERVICE

Corporate Services

Corey Ellis
Donald Greer

Brad Jordan
Gregory Prime
Peter White

Engineering and Technology Services

April Tucker
Kirsta Whynot
Blake Wright

Human Resources

Cindy MacLean

Operations

Martin Austin
Marcel Cornect
Gerald Doucette
Paul Harder
Emmett Leahy
Donald MacDonald
Glenn MacDonald
Justin MacKinnon
Andrew MacNab
Stephen MacRae
Alan O'Leary
Joshua Purcell
Angela Rayne
Anthony Riley
Sergei Shirokov
Kristopher Shrum
Josh Slaunwhite

10 YEARS OF SERVICE

Corporate Services

Jennifer Cottreau
Michael J. Dann

Engineering and Technology Services

Joshua DeYoung
Lynn Duffy
Heather Miller
Lee Singer

Operations

Richard Dawson
Richard Graham Christopher

Huggins
Glen MacRae
Ryan Martin
Sean McDonnell
Zach Rawlins
Shawn Rowe
David Tully
Jeremy White

Regulatory Services

Michael Edgar
Melissa Healey

5 YEARS OF SERVICE

Corporate Services

Rhea Hamilton
Melissa Morash
Melissa Morri
Holly Singer

Engineering and Technology Services

Emily Harker
Brandon Fields
Vaughn Landry
Udenwa Nnamdi-Ijei
Laura Selig

Operations

Shawn Barry
Andrew Blue
Michael Fileccia
Jason Gour
Alexander Hines
Reginald Hitchcock
Grayson Jones
Stephen Kerr
Joshua Martel
Austin Perring
Matthew Peters
Raymond Rice
Jarvis Singer
Adam Young

Regulatory Services

Johnathan Barkhouse
Devlyn Serrer

Fundraising & Volunteering

Halifax Water employees take great pride in the communities we live and serve. Employees can get involved in several different fundraising events, volunteer groups and community causes throughout the year.

United Way Halifax

Halifax Water employees have been helping support United Way Halifax for over 24 years. Halifax Water employees proudly pitched in and raised a total of \$4,873.

Water for People

Halifax Water employees donated \$10,566 to Water for People. These funds support the digging of wells to provide clean drinking water for approximately 4 million people in nine different countries.

Angel Tree Toy Drive

For more than ten years, it has been a tradition for Halifax Water employees to continue the Angel Tree Program to provide gifts for children in need in our community.

We provided gifts for over 100 children, from newborns to 11 years old, and thanks to the giving spirit of Halifax Water employees, they will get something special on Christmas Morning!



Sponsorships & Donations

Special Olympics Nova Scotia

Halifax Water fleet operators showed pride in their trucks as they volunteered to participate in the SONSTC. The Truck Convoy is a way to raise money for the Special Olympics in this province. Halifax Water was a Silver Level Sponsor of the event and was proud to have its trucks involved this year.

Purple Ribbon Campaign

In recognition and support of The Purple Ribbon Campaign, a movement to raise awareness of violence against women, Halifax Water employees came together and donated gift cards. These gift cards were given to the women at the Transition House Association of Nova Scotia, transitional homes empowering women to get the things they need to move forward.

H2O Fund

The H2O (Help to Others) Fund is a water, wastewater, and stormwater assistance fund that can be used by Halifax Water residential customers who are having difficulty making their bill payments.

Approved applicants will receive assistance once in a 24-month period to a maximum of \$275.00. This program is administered by the Salvation Army on behalf of Halifax Water.

Halifax Water's H2O Fund is funded by donations from Halifax Water employees throughout the year. Halifax Water matches these donations to a maximum of \$25,000 annually. This year, Halifax Water employees donated \$5,788 through payroll deductions.



NSCC Scholarships

Halifax Water is an active supporter of the educational growth of our community through scholarships provided to the Nova Scotia Community College. Since 2008, Halifax Water has offered over \$124,000 in scholarships for NSCC students, with accompanying work-terms. The scholarships not only benefit the community and recipients, but they have also provided Halifax Water with many highly skilled and motivated employees over the years:

Jipuktuk etli apatua'timk Award - \$4,000 Awarded each Fall & Spring

Established by Halifax Water to support First Nations, Métis and Inuit students entering the Civil Engineering Technology, Environmental Engineering Technology, Electronic Engineering Technology, or Mechanical Engineering Technology Programs at NSCC.

jipuktuk etli apatua'timk is the Mi'kmaq word for harbour or port and has been used to describe Halifax Harbour by Mi'kmaq people in Nova Scotia.

Arnold D. Johnson Sr. Award for Water Resources - \$3,600 Awarded each Fall

Established by Halifax Water to support Indigenous African Nova Scotian students entering Environmental Engineering Technology or Mechanical Engineering Technology at NSCC.

Named in honour of Arnold D. Johnson Sr., who served the Preston area communities as a Halifax County Councillor and was instrumental in creating the Watershed Association Development Enterprise and the Lake Major Watershed Advisory Committee, the award recognizes the foresight and dedication of Mr. Johnson during his many years of public service and his many accomplishments.

Robert T. Peacock Achievement Award - \$2,000 Awarded each Fall

Established by Halifax to support students who self-identify as racially visible entering their second year of the Environmental Engineering Technology program at NSCC.

Included with this award is an opportunity for the successful recipient to complete their required work term with Halifax Water.

Women in Non-Traditional Careers - \$2,000 Awarded each fall

This award is open to women in non-traditional careers that are entering one of the eligible NSCC Programs listed. Included with this award is an opportunity for the successful recipient to complete their required work placement with Halifax Water and an opportunity for summer employment.

Halifax Water Achievement Award - \$2,000 Awarded each Fall

This award is open to any student enrolled full-time in the Civil Engineering Technology Program at NSCC. Included with this award is an opportunity for the successful recipient to complete their required work term with Halifax Water.



Community Engagement Activities

Halifax Water is committed to communicating with and engaging with our stakeholders. Below is a brief summary of stakeholder and community engagement activities that took place during the 2023/24 fiscal year:

Sawmill Creek Community Engagement Session

In January 2024, Halifax Water, in partnership with HALIFAX, hosted public engagement sessions with property owners and residents in the Downtown Dartmouth district at the Findlay Community Centre. These informal walk-in sessions included information boards, allowing community members to walk through and learn more about the project and speak with representatives from Halifax Water and HALIFAX.

Stormwater Service Expansion

In April 2023, Halifax Water offered an online public information session on stormwater

services for customers within the expanded stormwater service areas.

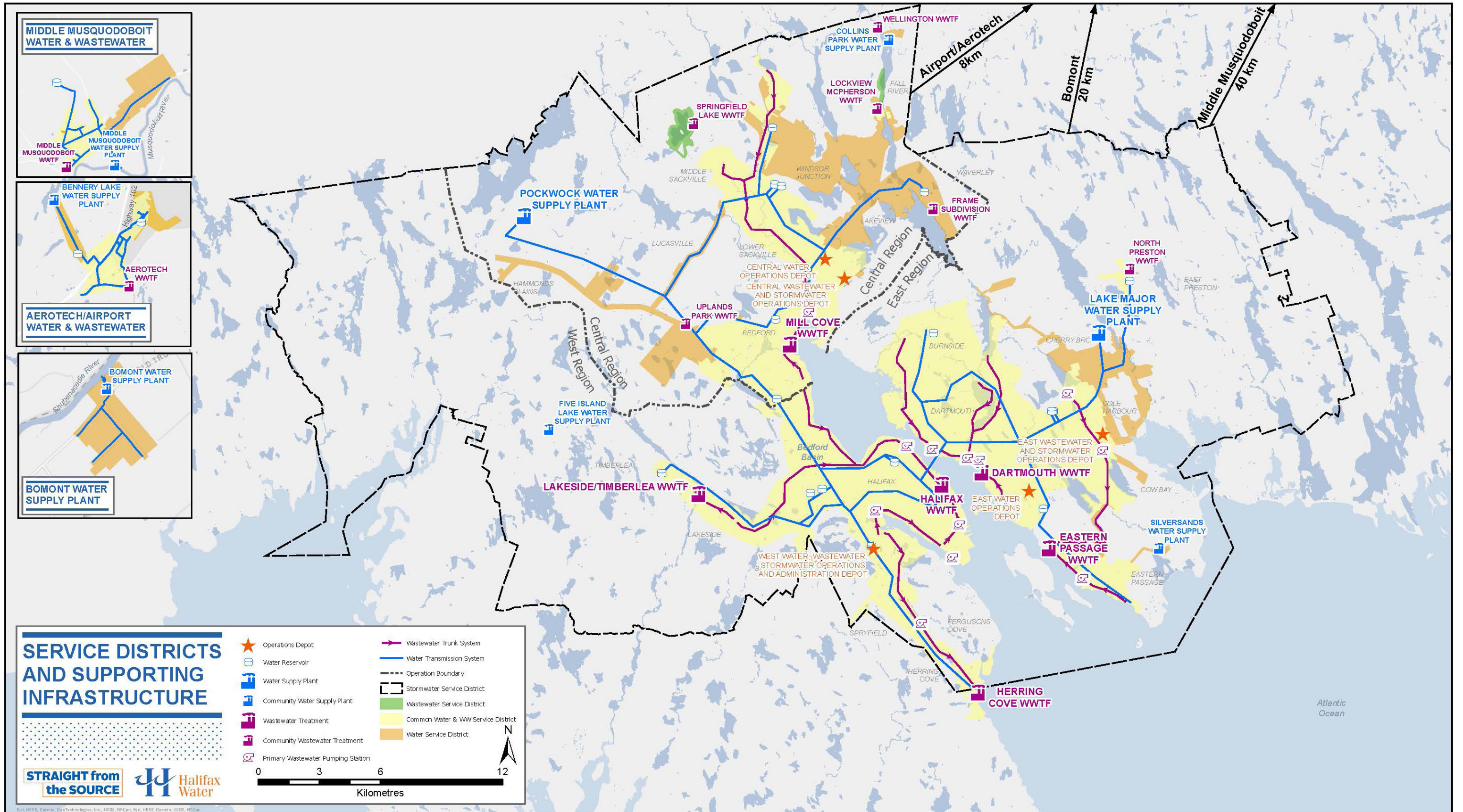
RDC & Development

To engage with the local development community, Halifax Water attended the 2023 Urban Development Institute of Nova Scotia Fall Conference.

Lake Major Watershed Protected Water Area Regulation Engagement Sessions

Halifax Water hosted several public engagement sessions with property owners in early 2023/24. These sessions were a follow up to sessions held in 2022/23 to seek feedback on potential changes to the regulations.

Service Area Map





Halifax Water by the Numbers

Water Infrastructure as of March 31, 2024

Water Supply Plant	Water Source	Treatment Process	Average Flows/Day	Filter Quantity & Capacity/Day	Maximum Flow Rate	Design Capacity/Day
J. D. Kline	Pockwock Lake	Dual Media Direct Filtration & Manganese Removal	94244	8 Filters 143 m ² /filter	0.137 m ³ /m ² per minute	227 000 m ³
Lake Major	Lake Major	Upflow Clarification, Iron & Manganese Removal	33906	4 Filters 85 m ² /filter	0.192 m ³ /m ² per minute	94 000 m ³
Bennery Lake	Bennery Lake	Sedimentation, Dual Media Filtration & Manganese Removal	903	2 Filters 26.65 m ² /filter	0.10 m ³ /m ² per minute	7 950 m ³
Middle Musquodoboit	Musquodoboit River	Raw Water Infiltration Gallery, Ultra/Nano Filtration	51	2 Ultra Filters 1 Nano Filter	0.139 m ³ /min 0.264 m ³ /min	260 m ³
Collins Park	Lake Fletcher	Ultra/Nano Filtration	57	2 Ultra Filters 1 Nano Filter	0.111 m ³ /min 0.145 m ³ /min	160 m ³
Bomont	Shubenacadie River	Nano Filtration/Ionic Exchange Resin	3	N/A	0.0132 m ³ /min	38 m ³
Silver Sands	2 Wells	Green Sand Pressure Filters, Iron & Manganese Removal	18	2 Filters	0.378 m ³ /min	30 m ³
Five Island Lake	1 Well	UV Disinfection	10	N/A	0.016 m ³ /min	N/A

Source Water	Rainfall in 2023-24	Snowfall in 2023-24
Pockwock Lake	1836.7mm	184.0cm
Lake Major	1622.0mm	166.5cm

Source Water	Watershed Area	Safe Yield/Day
Pockwock Lake	5 661 ha	145 500 m ³
Chain Lake	206 ha	4 500 m ³
Lake Major	6 944 ha	65 900 m ³
Lake Lemont/Topsail	346 ha	4 500 m ³
Bennery Lake	644 ha	2 300 m ³

Water Supply	Water Production in 2023-24 (m ³)
Pockwock Lake	34,493,256
Lake Major	12,409,500
Bennery Lake	330,325
Small Systems	50,700
Total	47,283,781

Reservoir	Elevation Above Sea Level	Capacity
Lake Major	60 m	9 092 m ³
Pockwock	170 m	13 600 m ³
Geizer 158	158 m	36 400 m ³
Geizer 123	123 m	31 800 m ³
Cowie	113 m	11 200 m ³
Robie	82 m	15 900 m ³
Lakeside	119 m	5 455 m ³
Mount Edward 1	119 m	22 728 m ³
Mount Edward 2	119 m	22 728 m ³
Akerley Blvd.	119 m	37 727 m ³
North Preston	125 m	1 659 m ³
Meadowbrook	95 m	9 091 m ³
Sampson	123 m	12 273 m ³
Stokil	123 m	23 636 m ³
Waverley	86 m	1 364 m ³
Middle Musquodoboit	81 m	275 m ³
Aerotech	174 m	4 085 m ³
Beaver Bank	156 m	6 937 m ³
Hemlock	123 m	21 500 m ³
Total	N/A	287 450 m ³

Corporate Balanced Scorecard Results

Transmission & Distribution System		Water Services & Meters		Population Served	
Size of Water Mains	19 mm - 1,500 mm	Water Sprinkler Systems		Halifax Municipality	
Total Water Mains	1,585 km	(25 mm - 300 mm)	2401		
Main Valves	15,936	Supply Services		Est. Population Served	436,000
Fire Hydrants	8,591	(10 mm - 400 mm)	87754		
Distribution Pumping (Booster) Stations	20	Water Meters		Consumption per Capita	215.79 L/person/day
Pressure Control & Flow Meter Chambers	145	(15 mm - 250 mm)	87446		

Wastewater & Stormwater Infrastructure as of March 31, 2024

Wastewater Treatment Facility	Treatment Process	Design Average Flows/Day	Area(s) Served	Receiving Water	Volume Treated in 2023-24
Halifax	Enhanced Primary UV	139 900 m ³	Halifax	Halifax Harbour	37,038,745
Dartmouth	Enhanced Primary UV	83 800 m ³	Dartmouth	Halifax Harbour	21,291,922
Herring Cove	Enhanced Primary UV	28 500 m ³	Halifax & Herring Cove	Halifax Harbour	4,741,272
Mill Cove	Secondary UV/Pure Oxygen Activated Sludge	28 400 m ³	Bedford & Sackville	Bedford Basin	10,556,149
Eastern Passage	Secondary UV/Conventional Activated Sludge	25 000 m ³	Cole Harbour & Eastern Passage	Halifax Harbour	5,831,723
Timberlea	Secondary Sodium Hypochlorite/RBC	4 540 m ³	Lakeside & Timberlea	Nine Mile River	1,135,689
Aerotech	Tertiary UV/Membrane Bioreactors	3 000 m ³	Aerotech Park & Airport	Johnson River	369,054
Springfield Lake	Secondary UV/Activated Sludge	543 m ³	Springfield Lake	Lisle Lake	168,141
Fall River	Tertiary UV/Activated Sludge & Post Filtration	454.5 m ³	Lockview Road & McPherson Road	Lake Fletcher	77,492
North Preston	Tertiary UV/SBR & Engineered Wetland	680 m ³	North Preston	Winder Lake	296,621
Middle Musquodoboit	UV/RBC	114 m ³	Middle Musquodoboit	Musquodoboit River	75,392
Uplands Park	Secondary UV/Trickling Filter & Wetland	91 m ³	Uplands Park	Sandy Lake	41,942
Wellington	Tertiary UV/Activated Sludge/Reed Bleed	68 m ³	Wellington	Grand Lake	7,239
Frame Subdivision	Tertiary UV/Membrane Reactor	80 m ³	Frame Subdivision	Lake William	9,707

Wastewater & Stormwater Collection System

Size of Pipes	38 mm - 3,000 mm
Total Collection System Length	2,328 km
Wastewater Services	83,916
Total Manholes	39,152
Total Pumping Stations	166
Total Ditch Length (km)	505
Holding Tanks & Retention Ponds	43
Cross Culverts	2,801
Driveway Culverts	17,661
Catchbasins	25,792

Organizational Indicators	Organization Award	2022/23 Results	2023/24		2024/25 Target
		TARGET	RESULTS	Target	
Financial and Regulatory Accountability					
Operating expense/revenue ratio percentage (excluding depreciation)	Gateway	62.0%	60.0%	62.6%	67%
Annual cost per customer connection – Water (excluding depreciation)		\$403	\$438	\$500	\$500
Annual cost per customer connection – Wastewater (excluding depreciation)		\$592	\$627	\$662.00	\$697
Total capital spend in the fiscal year (in millions)		\$93.5	\$135	\$98.2	\$135
Capital budget expenditures - Percentage of budget spend by end of fiscal year		35.3%	70-80%	34.7%	70-80%
Health Safety & Environment					
Average score on internal safety audits		98.0%	90.0%	96.1%	90%
NS Labour and Advanced Education compliance – Number of Incidents with written compliance orders		0	< 2%	0	2
Lost time accidents -Number of accidents resulting in lost time per 100 employees	Gateway	1	3	2.38	2.5
Safe driving - Number of traffic Accidents per 1,000,000 km driven (maximum of 5)	Org. Award	4.31	4	5.34	4
Training - Number of employees trained or re-certified before due date		89.0%	85.0%	86.0%	85%
Percentage of completed safety talks		90.0%	85.0%	88.0%	85%
Percentage of public health and environmental regulatory infractions resulting in a summary offense tickets		0%	< 2%	0%	2%
Percentage of WWTFs complying with NSE approval permits	Org. Award	97%	95%	95%	95%
Number of ICI properties engagements by Pollution Prevention each year		251	250	272	250
Operational Excellence					
Adherence with 5 objectives of Water Safety Plan for all water systems - Percentage of sites achieving targets	Org. Award	93	80	86	80
Bacteriological tests - Percentage free from Total Coliform		99.97%	99.90%	99.88%	99.90%
Water service outages - Number of connection hours/1000 customers		125.74	200	183.05	200
Wastewater service outages – Number of connection hours/1000 customers		1.03	4	0.61	4
Average speed of answer – Percentage of calls answered within 20 seconds		71.1%	70.0%	35.3%	70%
Response time for service connection permits – percentage of formal responses provided from Halifax Water within 3 days or less		N/A *	80.0%	91.0%	80%
Response time for subdivisions involving system extensions – percentage of formal responses from Halifax Water provided within 4 weeks or less review		N/A *	80.0%	92.7%	80%
Water leakage control – target leakage allowance of 160 litres/service connection/day	Org. Award	219	165	238	165
I&I reduction - Number of inspections to identify private property discharge of stormwater into the wastewater system		1387	1200	515	1200
Peak flow reduction from wet weather management capital projects	Org. Award	Data Not Available	5-10 l/sec**	1.7 l/sec**	5-10 l/sec**
Percentage of time GIS and Cityworks are available	Org. Award	99.95%	97.00%	99.87%	97%
Energy management kWh/m ³ reduction associated with capital projects	Org. Award	14.10%	10.00%	14.06%	10%
Bio-solids residual handling - percentage of sludge meeting bio-solids concentration targets	Org. Award	99.5%	95.0%	99.6%	95%
People					
Customer satisfaction about water quality - Percentage from customer survey	Org. Award	88.0%	85.0%	89.0%	85.0%
Customer satisfaction with service - Percentage from customer survey	Org. Award	97.0%	95.0%	95.0%	95.0%
Number of arbitrations divided by total number of grievances		0	0	0.0	0
Percentage of jobs filled with internal candidates		64%	80%	60%	80%
Employee satisfaction survey result		B+	A	B	A
Average number of days absenteeism		9.81	<7	9.5	<7
NOTES:					
* New metrics introduced in 2023/24, no values from previous year.					
** Peak flow reduction - The reduction was 1.7 l/sec for the Crescent Avenue Lining Program. This result was possibly underestimated due to the difference in pre-rehab and post-rehab flow monitoring. This represents a 7% reduction in peak flow which has reduced the high level alarms at the pump station and associated energy consumption.					

Customers by Service Type

Halifax Water provides one or more of the following to our customers: water, wastewater and/or stormwater services. Those services support an estimated population of 436,000 people, and numerous visitors to the region.

Customer Numbers by Type

	Number of Accounts	Percentage of Total
Water, Wastewater & Stormwater	76,459	68.6%
Stormwater Only	22,962	20.6%
Water & Wastewater	6,774	6.1%
Water & Stormwater	3,999	3.6%
Wastewater & Stormwater	530	0.5%
Water Only	522	0.5%
Wastewater Only	153	0.1%
Total of All Types	111,399	100%

Typical Water Analysis

TYPICAL ANALYSIS OF POCKWOCK LAKE & LAKE MAJOR WATER 2023 - 2024 (in milligrams per litre unless shown otherwise) <i>Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories</i>						
PARAMETERS	(Halifax) POCKWOCK		(Dartmouth) LAKE MAJOR		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	<2.0	23.1	<2.0	25.5	-	-
Aluminum	0.130	0.021	0.253	0.014	2.9	^A 0.2/0.1
Ammonia (N)	<0.05	0.06	<0.05	0.057	-	-
Arsenic	<0.001	<0.001	<0.001	<0.001	0.010	-
Calcium	0.9	8.8	1.1	17.0	-	-
Chloride	6.1	7.7	5.833	7.4	-	≤250
Chlorate	<0.1	<0.1	<0.1	<0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	24.3	<5.0	60.3	<5.0	-	≤15.0
Conductivity (µS/cm)	33	98	39	174	-	-
Copper (Total)	0.038	<0.001	0.116	<0.001	2.0	≤1.0
Fluoride	<0.1	0.13	<0.1	^B <0.1	1.5	-
Hardness (as CaCO3)	4.0	22.6	4.8	43.0	-	-
HAA5 (avg.)	-	0.018	-	0.038	0.080	-
Iron (Total)	0.09	<0.05	0.188	<0.05	-	≤0.3
Lead (Total) (µg/l)	<0.5	<0.5	<0.5	<0.5	5.0	-
Magnesium	0.390	0.420	0.397	0.420	-	-
Manganese (Total)	0.028	0.011	0.046	0.002	0.12	≤0.02
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	<0.05	<0.05	<0.05	<0.05	10.0	-
Nitrite (as N)	0.011	<0.01	<0.01	<0.01	1	-
pH (pH Units)	5.8	7.4	5.9	7.3	-	7.0 - 10.5
Potassium	0.24	0.29	0.24	0.23	-	-
Sodium	4.2	11.7	4.53	11.7	-	≤200
Solids (Total Dissolved)	25	59	34	128	-	≤500
Sulphate	3.77	14.06	2.20	44.20	-	≤500
Turbidity (NTU)	0.37	0.04	0.35	0.03	^C 0.15/0.2	-
Total Organic Carbon (TOC)	4.3	1.9	5.80	2.1	-	-
THM's (avg.)	-	0.036	-	0.05	0.100	-
Uranium (µg/l)	<0.1	<0.1	0.130	<0.1	20.0	-
Zinc (Total)	<0.005	0.145	0.010	0.143	-	≤5.0
PCB (µg/l)	-	-	-	-	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.1	<0.1	<0.1	<0.1	0.5 / 1.0	-
PFOS	<0.000002	<0.000002	<0.000002	<0.000002	0.0006	-
PFOA	<0.000002	<0.000002	<0.000002	<0.000002	0.0002	-

^AAluminum objective is related to type of plant filtration; the aluminum objective for direct filtration (Pockwock) is <0.20 mg/l and conventional filtration (Lake Major) is <0.10 mg/l.

^BFluoride was not being added to the finished water at the Lake Major WSP due to system maintenance.

^CThe Pockwock and Lake Major plants analyze turbidity immediately post-filtration. Each filter must produce water with a turbidity of <0.15 NTU 95% of the time at the Pockwock Water Supply Plant and <0.2 NTU 95% of the time at the Lake Major Water Supply Plant. Both Water Supply Plants must produce water with a turbidity <1.0 NTU 100% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS OF BENNERLY LAKE & BOMONT WATER

2023 - 2024

(in milligrams per litre unless shown otherwise)

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

PARAMETERS	(Halifax) POCKWOCK		(Dartmouth) LAKE MAJOR		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	<2.0	23.1	<2.0	25.5	-	-
Aluminum	0.130	0.021	0.253	0.014	2.9	^A 0.2/0.1
Ammonia (N)	<0.05	0.06	<0.05	0.057	-	-
Arsenic	<0.001	<0.001	<0.001	<0.001	0.010	-
Calcium	0.9	8.8	1.1	17.0	-	-
Chloride	6.1	7.7	5.833	7.4	-	≤250
Chlorate	<0.1	<0.1	<0.1	<0.1	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	24.3	<5.0	60.3	<5.0	-	≤15.0
Conductivity (µS/cm)	33	98	39	174	-	-
Copper (Total)	0.038	<0.001	0.116	<0.001	2.0	≤1.0
Fluoride	<0.1	0.13	<0.1	^B <0.1	1.5	-
Hardness (as CaCO3)	4.0	22.6	4.8	43.0	-	-
HAA5 (avg.)	-	0.018	-	0.038	0.080	-
Iron (Total)	0.09	<0.05	0.188	<0.05	-	≤0.3
Lead (Total) (µg/l)	<0.5	<0.5	<0.5	<0.5	5.0	-
Magnesium	0.390	0.420	0.397	0.420	-	-
Manganese (Total)	0.028	0.011	0.046	0.002	0.12	≤0.02
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	<0.05	<0.05	<0.05	<0.05	10.0	-
Nitrite (as N)	0.011	<0.01	<0.01	<0.01	1	-
pH (pH Units)	5.8	7.4	5.9	7.3	-	7.0 - 10.5
Potassium	0.24	0.29	0.24	0.23	-	-
Sodium	4.2	11.7	4.53	11.7	-	≤200
Solids (Total Dissolved)	25	59	34	128	-	≤500
Sulphate	3.77	14.06	2.20	44.20	-	≤500
Turbidity (NTU)	0.37	0.04	0.35	0.03	^C 0.15/0.2	-
Total Organic Carbon (TOC)	4.3	1.9	5.80	2.1	-	-
THM's (avg.)	-	0.036	-	0.05	0.100	-
Uranium (µg/l)	<0.1	<0.1	0.130	<0.1	20.0	-
Zinc (Total)	<0.005	0.145	0.010	0.143	-	≤5.0
PCB (µg/l)	-	-	-	-	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.1	<0.1	<0.1	<0.1	0.5 / 1.0	-
PFOS	<0.000002	<0.000002	<0.000002	<0.000002	0.0006	-
PFOA	<0.000002	<0.000002	<0.000002	<0.000002	0.0002	-

^AAluminum objective is related to type of plant filtration; the aluminum objective for direct filtration (Pockwock) is <0.20 mg/l and conventional filtration (Lake Major) is <0.10 mg/l.

^BFluoride was not being added to the finished water at the Lake Major WSP due to system maintenance.

^CThe Pockwock and Lake Major plants analyze turbidity immediately post-filtration. Each filter must produce water with a turbidity of <0.15 NTU 95% of the time at the Pockwock Water Supply Plant and <0.2 NTU 95% of the time at the Lake Major Water Supply Plant. Both Water Supply Plants must produce water with a turbidity <1.0 NTU 100% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS OF BENNERLY LAKE & BOMONT WATER

TYPICAL ANALYSIS – SMALL SYSTEMS

2023 - 2024

(in milligrams per litre unless shown otherwise)

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

PARAMETERS	BENNERLY LAKE		BOMONT		DRINKING WATER QUALITY	
	Raw Water	Treated Water	^A Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	3.7	29.8	-	25.5	-	-
Aluminum	0.220	0.013	-	0.022	2.9	0.1
Ammonia (N)	0.096	0.071	-	0.093	-	-
Arsenic	<0.001	<0.001	-	<0.001	0.010	-
Calcium	2.9	23.5	-	11.0	-	-
Chloride	5.8	8.1	-	8.6	-	≤250
Chlorate	<0.1	0.3	-	0.2	1.0	-
Chlorite	<0.1	<0.1	-	<0.1	1.0	-
Colour (True Colour Units)	50.7	<5.0	-	<5.0	-	≤15.0
Conductivity (µS/cm)	40	186	-	120	-	-
Copper (Total)	0.1840	0.0360	-	<0.001	2.0	≤1.0
Fluoride	<0.1	0.11	-	<0.1	1.5	-
Hardness (as CaCO3)	8.6	60.8	-	30.0	-	-
HAA5 (avg.)	-	0.025	-	0.048	0.080	-
Iron (Total)	1.25	<0.05	-	<0.05	-	≤0.3
Lead (Total) (µg/l)	<0.5	<0.5	-	<0.5	5.0	-
Magnesium	0.5	0.6	-	0.4	-	-
Manganese (Total)	0.353	0.051	-	0.006	0.12	≤0.02
Mercury (µg/l)	<0.013	<0.013	-	<0.013	1.0	-
Nitrate (as N)	0.121	0.183	-	0.078	10.0	-
Nitrite (as N)	<0.01	<0.01	-	<0.01	1.0	-
pH (pH Units)	6.5	7.3	-	7.6	-	7.0 - 10.5
Potassium	0.2	0.2	-	0.3	-	-
Sodium	4.5	13.7	-	14.0	-	≤200
Solids (Total Dissolved)	46	125	-	99	-	≤500
Sulphate	2.7	48.7	-	18.6	-	≤500
Turbidity (NTU)	0.75	0.04	-	0.22	^B 0.2/1.0; ^C 5.0	-
Total Organic Carbon (TOC)	5.4	2.1	-	1.9	-	-
THM's (avg.)	-	0.047	-	0.037	0.100	-
Uranium (µg/l)	<0.1	<0.1	-	<0.1	20.0	-
Zinc (Total)	<0.005	0.082	-	0.129	-	≤5.0
PCB (µg/l)	-	-	-	-	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.1/0.355	<0.1	-	<0.1/ 0.31	0.5 / 1.0	-
PFOS	<0.000002	<0.000002	-	<0.000002	0.0006	-
PFOA	<0.000002	<0.000002	-	<0.000002	0.0002	-

^ARaw water samples were not collected from the Bomont raw water source this past year. Treated water was supplied from either the Lake Major or Pockwock water systems.

^BThe Bennery Lake plant analyzes turbidity immediately post-filtration and must produce water with a turbidity of <0.2 NTU 95% of the time and <1.0 NTU 100% of the time.

^CFiltered turbidity values are not reported due to the fact that the Bomont Water Supply Plant was not treating raw water. Instead, treated water turbidity is reported and

TYPICAL ANALYSIS - SMALL SYSTEMS

2023 - 2024

(in milligrams per litre unless shown otherwise)

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

PARAMETERS	FIVE ISLAND LAKE		SILVER SANDS		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO ₃)	28.0	32.0	64.0	62.5	-	-
Aluminum	<0.005	<0.005	<0.005	<0.005	2.9	0.2
Ammonia (N)	<0.05	0.091	0.076	0.052	-	-
Arsenic	0.004	0.004	0.002	<0.001	0.010	-
Calcium	9.4	9.2	37.0	36.3	-	-
Chloride	5.6	7.9	62.0	65.6	-	≤250
Chlorate	<0.1	<0.1	<0.1	0.3	1.0	-
Chlorite	<0.1	<0.1	<0.1	<0.1	1.0	-
Colour (True Colour Units)	<5.0	<5.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	84	94	370	375	-	-
Copper (Total)	0.0040	0.0120	<0.001	0.0130	2.0	≤1.0
Fluoride	0.4	0.3	0.2	0.2	1.5	-
Hardness (as CaCO ₃)	28.0	27.0	110.0	110.0	-	-
HAA5 (avg.)	-	<0.0005	-	<0.005	0.080	-
Iron (Total)	<0.05	<0.05	0.89	<0.05	-	≤0.3
Lead (Total) (µg/l)	<0.5	<0.5	<0.5	<0.5	5.0	-
Magnesium	1.2	1.2	5.0	5.0	-	-
Manganese (Total)	<0.002	<0.002	0.97	0.006	0.12	≤0.02
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	<0.05	<0.05	<0.05	0.513	10.0	-
Nitrite (as N)	<0.01	<0.01	0.039	<0.01	1.0	-
pH (pH Units)	7.1	7.7	7.8	7.4	-	7.0 - 10.5
Potassium	0.5	0.5	0.9	0.9	-	-
Sodium	6.4	7.2	26.5	29.3	-	≤200
Solids (Total Dissolved)	66	78	220	230	-	≤500
Sulphate	2.8	3.3	17.5	18.2	-	≤500
Turbidity (NTU)	<0.1	0.06	7.50	0.10	^A 1.0	-
Total Organic Carbon (TOC)	<0.5	<0.5	<0.5	<0.5	-	-
THM's (avg.)	-	0.001	-	0.002	0.100	-
Uranium (µg/l)	11.5	11.0	<0.1	<0.1	20.0	-
Zinc (Total)	<0.005	0.008	<0.005	<0.005	-	≤5.0
PCB (µg/l)	<0.05	<0.05	-	-	-	-
Gross Alpha / Gross Beta (Bq/L)	0.39/0.310	0.24/0.12	0.11/<0.1	<0.01	0.5 / 1.0	-
PFOS	<0.000002	<0.000002	<0.000002	<0.000002	0.0006	-
PFOA	<0.000002	<0.000002	<0.000002	<0.000002	0.0002	-

^AThe Five Island Lake and Silver Sands Water Supply Plants must produce water with turbidity of <1.0 NTU 95% of the time, as required by Provincial Permit. Treated water turbidity is calculated from clearwell monitoring.



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