902-420-9287
450 Cowie Hill Road
P.O. Box 8388 RPO CSC
Halifax, Nova Scotia
Canada B3K 5M1

February 24, 2025

The regular meeting of the Halifax Water Board will be held virtually on Thursday, March 27, 2025, beginning at 9:00 a.m. Visit www.halifaxwater.ca to register to attend the public portion of the meeting.

# AGENDA

## In Camera Reports

1C Approval of Minutes of the In-Camera Meetings.

***Motion: That the Halifax Water Board approve the In-Camera minutes of January 30, 2025, and the special In Camera meetings of February 3, 2025, and March 6, 2025.***

2C Business Arising from Minutes

3C Security Matter

4C Operational Matter

5C Regulatory Matter

6C Contractual Matter

## Regular Reports

1. a) Ratification of In-Camera Motions

***Motion: That the Halifax Water Board ratify the In-Camera Motions.***

b) Approval of the order of business and approval of additions and deletions

***Motion: That the Halifax Water Board approve the order of business and approve additions and deletions.***

2. Approval of minutes of the Regular meeting held on February 27, 2025

***Motion: That the Halifax Water Board approve the minutes of the February 27, 2025, regular meeting.***

3. Business arising from minutes.
   a) None

## Financial Reports

4.1 Operating results as of January 31, 2025

4.2 Capital expenditures as of January 31, 2025

4.3 Spring Debenture

***Motion: That the Halifax Water Board approve the financing of $34,000,000 with a thirty-year amortization term and finance over ten years. The maximum all-inclusive rate is not to exceed 6.5%.***

## Capital Reports

5.1 Duffus Street Pumping Station – Mechanical & Electrical Upgrades – Funding Approval - $6,000,000.

***Motion: That the Halifax Water Board approve funding in the amount of $6,000,000 for the Duffus Street Pumping Station - Mechanical & Electrical Upgrades project.***

5.2 Burnside Operations Centre Update (Verbal)

## Other Business

6. Corporate Balanced Scorecard – 2025/26 Program

***Motion: That the Halifax Water Board:***

1. ***approve the Corporate Balanced Scorecard (CBS) targets for the 2025/26 fiscal year.***
2. ***request staff to develop a methodology to assess the fiscal health of the utility and to recommend whether the CBS Organizational Award be paid based on the assessment.***

7. Fluoride Recommendation

***Motion: That the Halifax Water Board directs Halifax Water to:***

1. ***Continue Fluoridating at the JD Kline Water Supply Plant (JDKWSP) and Lake Major Water Supply Plants (LMWSP),***
2. ***Proceed with Option 2, to reinstate Fluoride at Lake Major, at approximately $1M within two years.***
3. ***Establish notification protocols for interruptions of fluoridation in consultation with the Medical Officer of Health and dental partners.***
4. ***Write a letter to the Province of Nova Scotia requesting funding assistance for both capital and operating costs associated with fluoridation where it has been shown that community water fluoridation reduces costs to the health care system.***

8. Critical Goods and Services from US Companies and the Supply Chain Impact

## Information Reports

1-I HW Employees' Pension Plan Unaudited Results for the Year Ended December 31, 2024

2-I HW Employees' Supplemental Pension Plan Report

Lorna Skinner
Governance Coordination Assistant

| Halifax Water Board Meeting Minutes | |
|---|---|
| **Date: February 27, 2025** | **Meeting Time: 9:01 a.m.** |
| Attendees: | Commissioner Colleen Rollings, Chair |
| | Commissioner Cathy Deagle Gammon, Vice Chair |
| | Commissioner John MacPherson |
| | Commissioner Trish Purdy |
| | Commissioner Janet Steele |
| | Commissioner Patty Cuttell |
| | Commissioner Cathie O'Toole |
| | |
| Regrets: | Commissioner Nancy MacLellan |
| | |
| Staff: | Kenda MacKenzie, General Manager & CEO |
| | Louis de Montbrun, Director, Corporate Services &CFO |
| | Liana Rintoul, General Counsel |
| | Josh DeYoung, Director, Capital Engineering & Infrastructure |
| | John Eisnor, Director, Operations |
| | Wendy Krkosek, Director, Regulatory Services |
| | Ashley Kendall, Director, People and Culture |
| | Jeff Myrick, Senior Manager, Communications and Corporate Strategy |
| | Jonathan MacDonald, Manager, Water Infrastructure Planning |
| | Lorna Skinner, Governance Coordination Assistant, Regulatory Affairs and Governance Department |

| Regular Reports | |
|---|---|
| **1. APPROVAL OF THE ORDER OF BUSINESS AND APPROVAL OF ADDITIONS AND DELETIONS** | |
| Discussion Notes | **MOVED BY Commissioner John MacPherson, seconded by Commissioner Deagle Gammon that the Halifax Water Board approve the order of business and approval of additions and deletions.** |
| Decision | **MOTION PUT AND PASSED.** |

| **2. APPROVAL OF THE MINUTES OF JANUARY 30, 2025** | |
|---|---|
| Discussion Notes | **MOVED BY Commissioner Deagle Gammon, seconded by Commissioner Steele that the Halifax Water Board approve the minutes of the January 30, 2025, regular meeting.** |
| Decision | **MOTION PUT AND PASSED.** |

| **3. BUSINESS ARISING FROM THE MINUTES** | |
|---|---|
| Discussion Notes | None. |

| **4. PROPOSED 5-YEAR BUSINESS STRATEGY 2025-2030 AND ANNUAL BUSINESS PLAN FOR 2025/26.** | |
|---|---|
| Discussion Notes | Kenda MacKenzie gave a presentation on the 5-Year Strategic Plan for 2025-30, including the focus on empowering people, operational resiliency, safety, risk mitigation, organizational capacity, capital delivery, regulatory obligations, strategic initiatives, and financial improvement.<br><br>The Chair, on behalf of the Board, thanked the Executive team for all their hard work putting the 5-year Strategic Plan together. Cathie O'Toole informed the Board that both the 5-Year Plan and the Annual Plan will be presented to HRM Council.<br><br>Kenda MacKenzie also presented the detailed Annual Business Plan for 2025-26, which included specific deliverables and timelines for each strategic initiative. The plan aims to set the groundwork for achieving the five-year strategic goals.<br><br>**MOVED BY Commissioner Deagle Gammon, seconded by Commissioner Cuttle that the Halifax Water Board:**<br><br>**1. Approve the 5-year Business Strategy for 2025-2030, and**<br>**2. Approve the 2025/26 Annual Business Plan as attached to this report subject to non-substantive corrections and amendments, and** |

| | |
|---|---|
| | ***3.*** **Direct the General Manager to submit the final 2025/26 Annual Business Plan to Halifax Regional Council for their approval.** |
| Decision | **MOTION PUT AND PASSED.** |

| **5. WINDSOR STREET EXCHANGE REDEVELOPMENT PROJECT** | |
|---|---|
| Discussion Notes | Josh DeYoung and Jonathan MacDonald gave a presentation on the Windsor Street Exchange Redevelopment Project. The project includes replacing the North End feeder, separating the Young St. pocket sewer, and making other infrastructure improvements. The project aims to integrate work with HRM to save costs and minimize public disruption.<br><br>**MOVED BY Commissioner Steele, seconded by Commissioner Deagle Gammon that the Halifax Water Board approve the Windsor Street Exchange Redevelopment Project for a total project cost of $69,275,000 and submission to the Nova Scotia Utility and Review Board (NSUARB), subject to Halifax Regional Council approval.** |
| Decision | **MOTION PUT AND PASSED.** |

**Next Meeting Date: March 27, 2025**

Minutes taken by:
Lorna Skinner, Governance Coordination Assistant

# ITEM #4.1

**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: A65D6874EBC1467...
Louis de Montbrun, CPA, CA, Director of Corporate Services/CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F6...
Kenda MacKenzie, P.Eng., Acting CEO & General Manager

**DATE:** March 12, 2025

**SUBJECT:** **Financial Results for the Ten Months ended January 31, 2025**

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## ORIGIN

Financial information reporting.

## BACKGROUND

At the March 6, 2025, meeting of the Halifax Water Audit and Finance Committee, the attached Financial Results as of January 31, 2025, report was reviewed and discussed. The Committee approved forwarding the report to the Halifax Water Board for their information.

## DISCUSSION

No additional information was requested to be brought forward to the Halifax Water Board meeting following the discussion of the attached at the Committee meeting.

## ATTACHMENT

1. Report to the Halifax Water Audit & Finance Committee dated February 27, 2025, entitled Item #3 – Financial Results for the Ten Months ended January 31, 2025.

# ITEM # 3

**Halifax Water Audit & Finance Committee**

**March 6, 2025**

**TO:** Chair and Members of the Audit & Finance Committee

**SUBMITTED BY:** Signed by:
A05D0874EBC1407...
Louis de Montbrun, CPA, CGA
Director, Corporate Services/CFO

**APPROVED BY:** Signed by:
Kenda MacKenzie
0C564AC81379...
Kenda MacKenzie, P.Eng
General Manager & CEO

**DATE:** February 27, 2025

**SUBJECT:** Financial Results for the ten (10) months ended January 31, 2025

## ORIGIN

Financial information reporting.

## DISCUSSION

Attached are the operating results for Halifax Water for the ten (10) months year ended January 31, 2025, with comparative figures for January 31, 2024.

The following discussion of the operating results reflect direct operating costs by department and allocations among water, wastewater and stormwater for common costs shared across all the services provided by Halifax Water.

**Statement of Financial Position (NSUARB) – Page 3 of Attachment 1**

Key indicators and balances from the Statement of Financial Position are provided in the following tables.

**Table 1: Assets**

| January 31 (in thousands) | Notes | 2025 | 2024 | March 31 2024 | From Prior Year $ Change | From Prior Year % Change |
|---|---|---|---|---|---|---|
| **Assets** | | | | | | |
| Current | | | | | | |
| Cash and cash equivalents | **A** | $ 77,667 | $ 54,661 | $ 44,021 | $ 23,006 | 42.1% |
| Receivables | | | | | | |
| Customer charges and contractual | | 18,826 | 19,245 | 21,546 | (419) | (2.2%) |
| Unbilled service revenues | | 24,496 | 24,270 | 20,959 | 226 | 0.9% |
| Inventory | | 2,590 | 2,513 | 2,364 | 77 | 3.1% |
| Prepaids | **B** | 973 | 1,726 | 1,735 | (753) | (43.6%) |
| | | 124,553 | 102,415 | 90,625 | 22,138 | 21.6% |
| Utility plant in service | | 1,359,155 | 1,277,268 | 1,374,665 | 81,887 | 6.4% |
| Capital work in progress | **C** | 196,180 | 145,162 | 114,374 | 51,018 | 35.1% |
| Total assets | | 1,679,888 | 1,524,845 | 1,579,665 | 155,043 | 10.2% |
| Regulatory deferral account | | 1,885 | 2,093 | 2,044 | (208) | (9.9%) |
| **Total assets and regulatory deferral account** | | **$ 1,681,773** | **$1,526,938** | **$ 1,581,709** | **$ 154,835** | **10.1%** |

**Notes related to Table 1:**

A) *Cash and cash equivalents* have increased by $23.0 million from the prior year. The total balance of the Regional Development Charge (RDC) reserves.

B) *Prepaids* has decreased $0.8 million due to the timing of invoices received on prepaid services.

C) The $51.0 million increase in *capital work in progress* relates to the expenditures on active capital projects as of January 31.

### Table 2: Liabilities and Equity

| January 31 (in thousands) | Notes | 2025 | 2024 | March 31 2024 | From Prior Year $ Change | From Prior Year % Change |
|---|---|---|---|---|---|---|
| **Liabilities** | | | | | | |
| Current | | | | | | |
| Payables and accruals | | | | | | |
| Trade | A | 20,969 | 19,415 | 23,393 | 1,554 | 8.0% |
| Non-trade | | 4,822 | 3,453 | 5,579 | 1,369 | 39.6% |
| Interest on long term debt | | 2,292 | 1,400 | 3,062 | 892 | 63.7% |
| Halifax Regional Municipality | B | 5,011 | (2,613) | 5,047 | 7,624 | 291.8% |
| Contractor and customer deposits | | 1,617 | 3,394 | 1,095 | (1,777) | (52.4%) |
| Current portion of long term debt | C | 32,881 | 56,933 | 39,832 | (24,052) | (42.2%) |
| Unearned revenue | | 2,766 | 2,590 | 157 | 176 | 6.8% |
| | | 70,358 | 84,572 | 78,163 | (14,214) | (16.8%) |
| Long term debt | D | 260,089 | 179,483 | 196,622 | 80,606 | 44.9% |
| Deferred contributions | | 122,695 | 110,394 | 97,673 | 12,301 | 11.1% |
| Total liabilities | | 453,141 | 374,449 | 372,458 | 78,692 | 21.0% |
| **Equity** | | | | | | |
| Accumulated capital surplus | | 1,221,056 | 1,105,151 | 1,195,016 | 115,905 | 10.5% |
| Accumulated operating surplus | | 4,879 | 28,925 | 9,233 | (24,046) | (83.1%) |
| Operating surplus used to fund capital | | 12,380 | 12,380 | 12,380 | (0) | (0.0%) |
| Deficiency of revenues over expenditures | | (9,684) | 6,033 | (7,381) | (15,717) | (260.5%) |
| Total equity | | 1,228,632 | 1,152,489 | 1,209,248 | 76,143 | 6.6% |
| **Total liabilities and equity** | | **$ 1,681,773** | **$1,526,938** | **$ 1,581,706** | **$ 154,835** | **10.1%** |

### Notes related to Table 2:

A) *Trade payables and accruals* have increased by $1.6 million from the prior year. The volume of invoices payable has increased by 64% due to a higher level of activity. The average invoice amount has increased 2.4%.

| Payables and Accruals | | | | |
|---|---|---|---|---|
| | **2024/25** | 2023/24 | | |
| | **'000** | '000 | $ Change | % Change |
| Trade payables | **$ 12,079** | $ 9,809 | $ 2,269 | 23.1% |
| Trade accrued payables | **7,371** | 8,493 | (1,122) | (13.2%) |
| Accrued wastewater rebate | **1,521** | 1,112 | 408 | 36.7% |
| | **$ 20,969** | $ 19,415 | $ 1,555 | 8.0% |

B) *Halifax Regional Municipality payable* has increased by $7.6 million from prior year as a result of higher accruals for the dividend/grant in lieu of taxes and other amounts payable to HRM.

| HRM Receivables and Payables | | | | |
|---|---|---|---|---|
| | **2024/25** | 2023/24 | | |
| | **'000** | '000 | $ Change | % Change |
| Receivables | **$ 289** | $ 1,894 | $ (1,605) | (84.8%) |
| RDC | **6,116** | 6,745 | (629) | (9.3%) |
| Payables | **(11,416)** | (6,026) | (5,390) | 89.4% |
| Net receivables (payables) | **$ (5,011)** | $ 2,613 | $ (7,624) | (291.8%) |

C) *Current portion of long-term debt* has decreased $24.1 million due to the repayment of HRM debt in September 2024 and balloon payments in November 2024.

D) Increase in *long term debt* by $80.6 million due to the addition of new debt in November 2024.

Debt servicing ratio is a function of total interest and principal payments (including accrued amounts) plus the amortization of debt issue costs divided by total operating revenue per service. Debt servicing ratio by service as of January 31, 2025, is as follows:

| Debt Servicing Ratio by Service | | |
|---|---|---|
| | **2024/25** | 2023/24 |
| Water | **15.80%** | 13.24% |
| Wastewater | **17.30%** | 18.83% |
| Stormwater | **27.47%** | 22.67% |
| Combined | **17.46%** | 17.02% |

The combined debt servicing ratio has increased from the prior year. Debt servicing ratios have increased for water and stormwater because of the addition of new debt and decreased for wastewater because of the repayment of HRM debt in September 2024. The combined debt servicing ratio of 17.46% is below the maximum 35.00% ratio allowed under the blanket guarantee agreement with Halifax.

**Statement of Earnings (NSUARB) – Page 4 of Attachment 1**

**Table 3: Summarized Statement of Earnings (NSUARB)**

| Summarized Statement of Earnings | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Budget** | Actual | Actual | From Prior Year | | Actual to Budget | |
| | **Notes** | **2024/25** | 2024/25 | 2023/24 | | | | |
| | | **'000** | '000 | '000 | $ Change | % Change | $ Change | % Change |
| Operating revenues | | **$ 172,059** | $ 147,871 | $ 146,351 | $ 1,520 | 1.04% | $ (24,188) | (14.06%) |
| Operating expenditures | | **150,859** | 126,455 | 111,010 | 15,445 | 13.91% | (24,404) | (16.18%) |
| Earnings from operations before financial and other revenues and expenditures | | **21,201** | 21,417 | 35,341 | (13,925) | (39.40%) | 216 | 1.02% |
| Financial and other revenues | | **998** | 619 | 656 | (37) | (5.68%) | (379) | (38.00%) |
| Financial and other expenditures | | **40,905** | 31,719 | 29,964 | 1,755 | 5.86% | (9,186) | (22.46%) |
| Loss for the year | **A** | **$ (18,706)** | $ (9,684) | $ 6,033 | $ (15,717) | (260.51%) | $ 9,023 | (48.23%) |

**Notes related to Table 3:**

A) The *loss for the year* of $9.7 million is a decrease of $15.7 million from the prior year *earnings*. The following is a discussion of factors influencing the change.

**Table 4: Operating Revenues:**

| Operating Revenues | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Budget** | **Actual** | Actual | From Prior Year | | Actual to Budget | |
| | **Notes** | **2024/25** | **2024/25** | 2023/24 | | | | |
| | | **'000** | **'000** | '000 | $ Change | % Change | $ Change | % Change |
| Consumption revenue | **B** | **$ 111,427** | **$ 97,812** | $ 96,429 | $ 1,383 | 1.43% | $ (13,615) | (12.22%) |
| Base charge revenue | | **34,356** | **28,756** | 28,818 | (62) | (0.22%) | (5,600) | (16.30%) |
| Wastewater rebate | | **(1,629)** | **(1,758)** | (1,418) | (340) | 23.94% | (129) | 7.92% |
| Metered sales total | | **144,154** | **124,810** | 123,829 | 982 | 0.79% | $ (19,344) | (13.42%) |
| Stormwater site generated charge | | **8,864** | **6,878** | 6,757 | 121 | 1.79% | (1,986) | (22.41%) |
| Stormwater right of way | | **6,515** | **5,430** | 5,429 | 1 | 0.01% | (1,086) | (16.66%) |
| Public fire protection | | **8,083** | **6,736** | 6,736 | (0) | (0.00%) | (1,347) | (16.67%) |
| Private fire protection | | **1,721** | **1,437** | 1,413 | 24 | 1.68% | (284) | (16.52%) |
| Other operating revenue | | **2,714** | **2,581** | 2,187 | 394 | 18.02% | (133) | (4.90%) |
| Operating revenue total | **A** | **$ 172,051** | **$ 147,871** | $ 146,351 | $ 1,521 | 1.04% | $ (24,180) | (14.05%) |

**Notes related to Table 4:**

Operating revenues are presented above, broken down by type:

A) *Operating revenues* have increased $1.5 million as compared to the previous year.

B) *Consumption revenue* has increased $1.4 million over the prior year due to an increase in water consumption of 1.3%.

| Consumption by Customer Class (m³) | | | | |
|---|---|---|---|---|
| | **2024/25** | 2023/24 | m³ Change | % Change |
| Commercial | **5,817,855** | 5,945,292 | (127,437) | (2.1%) |
| Industrial | **1,457,864** | 1,455,046 | 2,818 | 0.2% |
| Institutional | **3,213,602** | 3,280,435 | (66,833) | (2.0%) |
| Multi-residential | **6,936,355** | 6,743,791 | 192,564 | 2.9% |
| Residential | **10,969,833** | 10,613,423 | 356,410 | 3.4% |
| | **28,395,509** | 28,037,988 | 357,521 | 1.3% |

**Table 5: Operating expenditures:**

| Operating Expenditures | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Budget** | **Actual** | Actual | From Prior Year | | Actual to Budget | |
| | **Notes** | **2024/25** | **2024/25** | 2023/24 | | | | |
| | | **'000** | **'000** | '000 | $ Change | % Change | $ Change | % Change |
| Water supply and treatment | **B** | **$ 13,661** | **$ 12,659** | $ 13,046 | $ (387) | (2.98%) | $ (1,002) | (7.33%) |
| Water transmission and distribution | **C** | **14,066** | **12,980** | 9,923 | 3,058 | 30.81% | (1,086) | (7.72%) |
| Wastewater collection | | **14,346** | **12,426** | 11,588 | 838 | 7.23% | (1,920) | (13.38%) |
| Stormwater collection | **D** | **5,816** | **5,202** | 4,218 | 983 | 23.32% | (614) | (10.56%) |
| Wastewater treatment | **E** | **26,368** | **21,698** | 19,644 | 2,054 | 10.46% | (4,670) | (17.71%) |
| Engineering and technology service | **F** | **17,757** | **15,635** | 12,031 | 3,604 | 29.95% | (2,122) | (11.95%) |
| Regulatory services | | **5,922** | **4,443** | 3,688 | 755 | 20.43% | (1,479) | (24.97%) |
| Customer services | | **4,507** | **3,890** | 3,680 | 210 | 5.71% | (617) | (13.69%) |
| Corporate services | | **3,743** | **3,340** | 2,465 | 874 | 35.48% | (403) | (10.77%) |
| Administration services | **G** | **10,267** | **4,594** | 3,767 | 827 | 21.95% | (5,673) | (55.25%) |
| Depreciation and amortization | **H** | **34,406** | **29,587** | 26,960 | 2,628 | 9.75% | (4,819) | (14.01%) |
| Total operating expenditures | **A** | **$ 150,859** | **$ 126,454** | $ 111,010 | $ 15,444 | 13.91% | $ (24,405) | (16.18%) |

**Notes related to Table 5:**

A) *Operating expenditures* of $126.5 million are $15.4 million higher than the prior year.

B) *Water supply and treatment* expenditures have decreased $0.4 million from prior year due to a decrease in chemicals including alum, phosphate and caustic soda.

C) *Water transmission and distribution* expenditures have increased $3.1 million from prior year due to an increase in vehicle cost allocation, hired equipment, road and street repairs, contract services, wages, materials and supplies, and traffic control services. Increased costs are primarily in core maintenance activities for distribution mains, hydrants, and services.

D) *Stormwater collection* expenditures have increased $1.0 million from prior year due to an increase in contract services and traffic control which was required for an increase in ditching work required for recently acquired stormwater infrastructure through the boundary expansion.

E) *Wastewater treatment* expenditures have increased $2.1 million from prior year due mainly to an increase in electricity, equipment repairs and biosolid treatment costs.

F) *Engineering and technology services* expenditures have increased $3.6 million from prior year due to an increase in computer software and licenses, network equipment, and salaries.

G) *Administration services* expenditures of $4.6 million have increased $0.8 million from the prior year. The current year total is well below budget due to the budget including $0.5 million for the Organizational Award which is not accrued or recorded until approved by the Board, and the estimate for increases based on union negotiations. The actual costs for salary increases were assigned directly to employee departments when paid in December 2024.

H) *Depreciation and amortization* increased $2.6 million over prior year because of additions to assets, including capitalization of the Cayenta ERP system, added in the prior year.

**Table 6: Financial and other revenues:**

| Financial and other revenues | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Budget | Actual | Actual | From Prior Year | | Actual to Budget | |
| | Notes | 2024/25 '000 | 2024/25 '000 | 2023/24 '000 | $ Change | % Change | $ Remaining | % Remaining |
| Interest | | $ 383 | $ 91 | $ 249 | $ (158) | (63.48%) | $ (292) | (76.26%) |
| Other | | 615 | 528 | 407 | 121 | 29.67% | (87) | (14.16%) |
| Total financial and other revenues | A | $ 998 | $ 619 | $ 656 | $ (37) | (5.68%) | $ (379) | (38.00%) |

**Notes related to Table 6:**

A) *Financial and other revenues* have decreased from prior year due to lower interest rates resulting in less revenue earned on cash balances.

**Table 7: Financial and other expenditures:**

| Financial and other expenditures | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Budget | Actual | Actual | From Prior Year | | Actual to Budget | |
| | Notes | 2024/25 '000 | 2024/25 '000 | 2023/24 '000 | $ Change | % Change | $ Remaining | % Remaining |
| Interest on long term debt | | 9,375 | 7,523 | 5,473 | 2,050 | 37.45% | (1,853) | (19.76%) |
| Repayment on long term debt | | 24,078 | 18,057 | 18,774 | (717) | (3.82%) | (6,020) | (25.00%) |
| Amortization of debt discount | | 245 | 203 | 183 | 20 | 11.15% | (42) | (17.03%) |
| Dividend/grant in lieu of taxes | | 7,031 | 5,823 | 5,501 | 322 | 5.85% | (1,209) | (17.19%) |
| Other | | 175 | 113 | 33 | 80 | 241.72% | (62) | (35.65%) |
| Total financial and other expenditures | A | $ 40,905 | $ 31,719 | $ 29,964 | $ 1,755 | 5.86% | $ (9,186) | (22.46%) |

**Notes related to Table 7:**

**A)** *Financial and other expenditures* have increased $1.8 million when compared to prior year due to an increase in interest on new debt.

**Table 8: Operating Results by Service:**

| Operating Results by Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Budget 2024/25 '000** | Actual 2024/25 '000 | Actual 2023/24 '000 | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Change | Actual to Budget % Change |
| Water | **$ (9,233)** | $ (8,276) | $ (669) | $ (7,607) | 1137.10% | $ 957 | (10.36%) |
| Wastewater | **(6,998)** | 988 | 7,068 | (6,080) | (86.03%) | 7,985 | (114.11%) |
| Stormwater | **(2,476)** | (2,395) | (366) | (2,029) | 554.65% | 81 | (3.26%) |
| Earnings (loss) for the year | **$ (18,706)** | $ (9,684) | $ 6,033 | $ (15,717) | (260.51%) | $ 9,023 | (48.23%) |

The results in Table 8 are explained in more detail in Tables 9 to 11.

**Table 9: Operating Results by Service – Water:**

| Operating Results by Service - Water | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Notes** | **Budget 2024/25 '000** | **Actual 2024/25 '000** | Actual 2023/24 '000 | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Change | Actual to Budget % Change |
| Operating revenues | **A** | **$ 65,480** | **$ 56,184** | $ 55,519 | $ 665 | 1.20% | $ (9,295) | (14.20%) |
| Operating expenditures | **B** | **58,189** | **50,904** | 44,754 | 6,150 | 13.74% | (7,286) | (12.52%) |
| Earnings from operations | | **7,290** | **5,280** | 10,765 | (5,485) | (50.95%) | (2,010) | (27.57%) |
| Financial and other revenues | | **830** | **632** | 569 | 63 | 11.08% | (198) | (23.87%) |
| Financial and other expenditures | **C** | **17,353** | **14,189** | 12,003 | 2,186 | 18.21% | (3,165) | (18.24%) |
| Earnings (loss) for the year | | **$ (9,233)** | **$ (8,276)** | $ (669) | $ (7,607) | 1137.10% | $ 957 | (10.36%) |

*Water services loss* of $8.3 million has increased from the prior year loss by $7.6 million due to the following factors:

A) Increase in *operating revenues* of $0.6 million due to an increase in consumption as previously discussed under Notes to Table 4.

B) Increase in *operating expenditures* of $6.2 million due to higher costs in water transmission and distribution, engineering and technology services, and depreciation and amortization.

C) Increase in *financial and other expenditures* of $2.2 million due to higher interest rates on new long-term debt as compared to existing debt, higher repayment of long-term debt, and a higher dividend/grant in lieu of taxes.

**Table 10: Operating Results by Service – Wastewater:**

| Operating Results by Service - Wastewater | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Budget | Actual | Actual | From Prior Year | | Actual to Budget | |
| | Notes | 2024/25 '000 | 2024/25 '000 | 2023/24 '000 | $ Change | % Change | $ Change | % Change |
| Operating revenues | A | $ 90,952 | $ 79,183 | $ 78,491 | $ 692 | 0.88% | $ (11,769) | (12.94%) |
| Operating expenditures | B | 78,542 | 63,975 | 56,456 | 7,519 | 13.32% | (14,567) | (18.55%) |
| Earnings (loss) from operations | | 12,410 | 15,208 | 22,035 | (6,827) | (30.98%) | 2,798 | 22.55% |
| Financial and other revenues | | 296 | 189 | 170 | 19 | 11.13% | (107) | (36.07%) |
| Financial and other expenditures | C | 19,703 | 14,409 | 15,137 | (728) | (4.81%) | (5,294) | (26.87%) |
| Earnings (loss) for the year | | $ (6,998) | $ 988 | $ 7,068 | $ (6,080) | (86.03%) | $ 7,985 | (114.11%) |

*Wastewater services earnings* of $1.0 million has decreased $6.1 million from prior year due to the following factors:

A) *Operating revenues* increase of $0.7 million is attributable to an increase in consumption and the resulting wastewater discharge revenue as previously discussed under Notes to Table 4.

B) *Operating expenditures* increase of $7.5 million is attributable primarily to increases in costs associated with wastewater treatment, engineering and technology services, and depreciation and amortization because of additions to assets as previously discussed under Notes to Table 5.

C) *Financial and other expenditures* decrease of $0.7 million is due to lower repayment of long-term debt following the final payment on a large debt issue payable to HRM to finance wastewater assets. Repayments will be higher in future months with the new debt received in November.

D) *Earnings (loss) for the year* decrease of $6.1 million is due to increases in expenditures exceeding the increase in revenues, as noted above. Despite the decline in earnings, expenditures are below budget. The allocation of *Administration services* is below budget, as noted under Table 4 and is on pace to be $2.0 million under budget for the year. Repayment of long-term debt is under budget due to the budget including a full year of appropriation of a large debt issue owed to HRM. The issue matured in September resulting in an excess budget amount of $3.2 million.

**Table 11: Operating Results by Service – Stormwater:**

| Operating Results by Service - Stormwater | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Budget | Actual | Actual | From Prior Year | | Actual to Budget | |
| | Notes | 2024/25 '000 | 2024/25 '000 | 2023/24 '000 | $ Change | % Change | $ Change | % Change |
| Operating revenues | A | $ 15,627 | $ 12,504 | $ 12,341 | $ 163 | 1.32% | $ (3,123) | (19.98%) |
| Operating expenditures | B | 14,127 | 11,576 | 9,800 | 1,776 | 18.12% | (2,551) | (18.06%) |
| Loss from operations | | 1,500 | 928 | 2,541 | (1,613) | (63.47%) | (572) | (38.13%) |
| Financial and other revenues | C | (128) | (202) | (83) | (119) | 143.71% | (74) | 58.11% |
| Financial and other expenditures | D | 3,849 | 3,121 | 2,824 | 297 | 10.53% | (727) | (18.90%) |
| Earnings (loss) for the year | | $ (2,476) | $ (2,395) | $ (366) | $ (2,029) | 554.65% | $ 81 | (3.26%) |

*Stormwater services loss* of $2.4 million is $2.0 million greater than the prior year loss. The following factors influenced the results:

A) Increase of $0.2 million in *operating revenues* from prior year due to an increase in site generated service revenue from growth in customer billable impervious area and an increase in drawing review fees generated by continuing growth in development activity.

B) Increase of $1.8 million in *operating expenditures* from prior year due to an increase in contract services, traffic control, ditching, catch basin cleaning and hired equipment as previously discussed in Notes to Table 5.

C) Change in *financial and other revenues* is the result of higher allocation of the interest cost as the stormwater service has a larger accumulated loss than in the prior year.

D) Increase in *financial and other expenditures* due to increasing interest rates on long-term debt and principal payments for new debt.

**Results under NSUARB Handbook as compared to International Financial Reporting Standards**

As a rate regulated utility, the Accounting Standards Board (AcSB) requires Halifax Water to report financial results using IFRS. The NSUARB requires Halifax Water to report in accordance with the NSUARB Handbook. The differences between IFRS and the NSUARB Handbook include Non-cash pension expense, principal payments of long term debt, depreciation expense on contributed assets, various depreciation adjustments and other comprehensive income gain.

**Attachments**

Attachment 1: Financial results for the ten (10) months ended January 31, 2025.

Report prepared by: Signed by: Warren Brake FF7DA2078445420...

Warren Brake, CPA, CGA
Manager of Accounting (902) 719-4814

**HALIFAX WATER**
**UNAUDITED STATEMENT OF FINANCIAL POSITION - IFRS**
**January 31, 2025 (in thousands)**

| January 31 (in thousands) | 2025 | 2024 | March 31 2024 | From Prior Year $ Change | From Prior Year % Change |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| Current | | | | | |
| Cash and cash equivalents | $ 77,667 | $ 54,661 | $ 44,021 | $ 23,006 | 42.1% |
| Receivables | | | | | |
| Customer charges and contractual | 18,826 | 19,245 | 21,546 | (419) | (2.2%) |
| Unbilled service revenues | 24,496 | 24,270 | 20,959 | 226 | 0.9% |
| Inventory | 2,590 | 2,513 | 2,364 | 77 | 3.1% |
| Prepaids | 973 | 1,726 | 1,735 | (753) | (43.6%) |
| | 124,553 | 102,415 | 90,625 | 22,138 | 21.6% |
| Intangible assets | 34,622 | 20,723 | 35,989 | 13,899 | 67.1% |
| Capital work in progress | 196,180 | 145,162 | 114,374 | 51,018 | 35.1% |
| Utility plant in service | 1,279,232 | 1,264,995 | 1,297,942 | 14,237 | 1.1% |
| Total assets | 1,634,587 | 1,533,295 | 1,538,931 | 101,292 | 6.6% |
| Regulatory deferral account | 1,885 | 2,093 | 2,044 | (208) | (9.9%) |
| **Total assets and regulatory deferral account** | **$ 1,636,472** | **$ 1,535,388** | **$ 1,540,974** | **$ 101,084** | **6.6%** |
| **Liabilities** | | | | | |
| Current | | | | | |
| Payables and accruals | | | | | |
| Trade | 20,969 | 19,415 | 23,393 | 1,554 | 8.0% |
| Non-trade | 4,822 | 3,453 | 5,579 | 1,369 | 39.6% |
| Interest on long term debt | 2,292 | 1,400 | 3,062 | 892 | 63.7% |
| Halifax Regional Municipality | 5,011 | (2,613) | 5,047 | 7,624 | 291.8% |
| Contractor and customer deposits | 1,617 | 3,394 | 1,095 | (1,777) | (52.4%) |
| Current portion of deferred contributed capital | 19,260 | 18,836 | 19,260 | 424 | 2.3% |
| Current portion of long term debt | 32,881 | 56,933 | 39,832 | (24,052) | (42.2%) |
| Unearned revenue | 2,766 | 2,590 | 157 | 176 | 6.8% |
| | 89,618 | 103,408 | 97,423 | (13,790) | (13.3%) |
| Deferred contributed capital | 938,818 | 925,008 | 928,048 | 13,810 | 1.5% |
| Long term debt | 260,089 | 179,483 | 196,622 | 80,606 | 44.9% |
| Employee benefit obligation | 3,190 | 13,622 | 2,353 | (10,432) | (76.6%) |
| Total liabilities | 1,291,715 | 1,221,521 | 1,224,445 | 70,194 | 5.7% |
| **Equity** | | | | | |
| Accumulated other comprehensive loss | 60,395 | 51,651 | 60,396 | 8,744 | 16.9% |
| Accumulated surplus | 284,362 | 262,216 | 256,130 | 22,145 | 8.4% |
| Total equity | 344,757 | 313,867 | 316,526 | 30,890 | 9.8% |
| **Total liabilities and equity** | **$ 1,636,472** | **$ 1,535,388** | **$ 1,540,972** | **$ 101,084** | **6.6%** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS AND COMPREHENSIVE EARNINGS - ALL SERVICES - IFRS**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **Operating revenues** | | | | | | | | |
| Water | $ 47,378 | $ 46,733 | $ 54,832 | 86.41% | $ 645 | 1.38% | $ (7,454) | (13.59%) |
| Wastewater | 77,432 | 77,096 | 89,330 | 86.68% | 336 | 0.44% | (11,897) | (13.32%) |
| Stormwater | 12,307 | 12,186 | 15,379 | 80.03% | 121 | 1.00% | (3,072) | (19.97%) |
| Public fire protection | 6,736 | 6,736 | 8,083 | 83.33% | (0) | (0.00%) | (1,347) | (16.67%) |
| Private fire protection | 1,437 | 1,413 | 1,721 | 83.48% | 24 | 1.68% | (284) | (16.52%) |
| Other operating revenue | 2,581 | 2,187 | 2,714 | 95.09% | 394 | 18.02% | (133) | (4.91%) |
| | **147,871** | **146,351** | **172,059** | **85.94%** | **1,520** | **1.04%** | **(24,188)** | **(14.06%)** |
| **Operating expenditures** | | | | | | | | |
| Water supply and treatment | 12,659 | 13,046 | 13,661 | 92.66% | (387) | (2.97%) | (1,002) | (7.34%) |
| Water transmission and distribution | 12,980 | 9,923 | 14,066 | 92.28% | 3,057 | 30.81% | (1,086) | (7.72%) |
| Wastewater collection | 12,426 | 11,588 | 14,346 | 86.62% | 838 | 7.24% | (1,920) | (13.38%) |
| Stormwater collection | 5,202 | 4,218 | 5,816 | 89.44% | 984 | 23.32% | (614) | (10.56%) |
| Wastewater treatment | 21,698 | 19,644 | 26,368 | 82.29% | 2,054 | 10.46% | (4,670) | (17.71%) |
| Engineering and technology services | 15,635 | 12,031 | 17,757 | 88.05% | 3,604 | 29.96% | (2,122) | (11.95%) |
| Regulatory compliance services | 4,443 | 3,688 | 5,922 | 75.03% | 755 | 20.48% | (1,479) | (24.97%) |
| Customer services | 3,890 | 3,680 | 4,507 | 86.32% | 210 | 5.71% | (617) | (13.68%) |
| Corporate services | 3,340 | 2,465 | 3,743 | 89.24% | 875 | 35.50% | (403) | (10.76%) |
| Administration services | 4,594 | 3,767 | 10,267 | 44.75% | 827 | 21.96% | (5,673) | (55.25%) |
| Pension services | 956 | 5,496 | 2,889 | 33.08% | (4,540) | (82.61%) | (1,933) | (66.92%) |
| Depreciation and amortization | 47,437 | 41,167 | 53,666 | 88.39% | 6,270 | 15.23% | (6,229) | (11.61%) |
| | **145,261** | **130,713** | **173,008** | **83.96%** | **14,548** | **11.13%** | **(27,747)** | **(16.04%)** |
| **Earnings (loss) from operations before financial and other revenues and expenditures** | **2,610** | **15,638** | **(948)** | **(275.23%)** | **(13,028)** | **(83.31%)** | **3,559** | **(375.23%)** |
| **Financial and other revenues** | | | | | | | | |
| Interest | 91 | 249 | 383 | 23.74% | (158) | (63.48%) | (292) | (76.26%) |
| Amortization of contributed capital | 11,316 | 12,439 | 19,260 | 58.75% | (1,123) | (9.03%) | (7,944) | (41.25%) |
| Other | 528 | 408 | 615 | 85.84% | 120 | 29.49% | (87) | (14.16%) |
| | **11,935** | **13,096** | **20,258** | **58.91%** | **(1,161)** | **(8.87%)** | **(8,323)** | **(41.09%)** |
| **Financial and other expenditures** | | | | | | | | |
| Interest | 0 | 0 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| Interest on long term debt | 7,523 | 5,473 | 9,375 | 80.24% | 2,050 | 37.45% | (1,853) | (19.76%) |
| Amortization of debt discount | 203 | 183 | 245 | 82.97% | 20 | 11.15% | (42) | (17.03%) |
| Dividend/grant in lieu of taxes | 5,823 | 5,501 | 7,031 | 82.81% | 322 | 5.85% | (1,209) | (17.19%) |
| Other | 113 | 32 | 175 | 64.35% | 80 | 249.36% | (62) | (35.65%) |
| | **13,662** | **11,189** | **16,827** | **81.19%** | **2,472** | **22.10%** | **(3,166)** | **(18.81%)** |
| **Earnings for the year before other comprehensive earnings** | **$ 883** | **$ 17,545** | **$ 2,482** | **35.58%** | **$ (16,662)** | **(94.97%)** | 0 | 0.00% |
| | | | | | | | **$ (1,599)** | **(64.42%)** |
| | | | | | | | 0 | 0.00% |
| **Other comprehensive earnings** | 0 | 0 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| | | | | | | | 0 | 0.00% |
| **Total comprehensive earnings for the year** | **$ 883** | **$ 17,545** | **$ 2,482** | **35.58%** | **$ (16,662)** | **(94.97%)** | **$ (1,599)** | **(64.42%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF FINANCIAL POSITION - NSUARB**
**January 31, 2025 (in thousands)**

| January 31 (in thousands) | 2025 | 2024 | March 31 2024 | From Prior Year $ Change | From Prior Year % Change |
|---|---|---|---|---|---|
| **Assets** | | | | | |
| Current | | | | | |
| Cash and cash equivalents | $ 77,667 | $ 54,661 | $ 44,021 | $ 23,006 | 42.1% |
| Receivables | | | | | |
| Customer charges and contractual | 18,826 | 19,245 | 21,546 | (419) | (2.2%) |
| Unbilled service revenues | 24,496 | 24,270 | 20,959 | 226 | 0.9% |
| Inventory | 2,590 | 2,513 | 2,364 | 77 | 3.1% |
| Prepaids | 973 | 1,726 | 1,735 | (753) | (43.6%) |
| | 124,553 | 102,415 | 90,625 | 22,138 | 21.6% |
| Utility plant in service | 1,359,155 | 1,277,268 | 1,374,665 | 81,887 | 6.4% |
| Capital work in progress | 196,180 | 145,162 | 114,374 | 51,018 | 35.1% |
| Total assets | 1,679,888 | 1,524,845 | 1,579,665 | 155,043 | 10.2% |
| Regulatory deferral account | 1,885 | 2,093 | 2,044 | (208) | (9.9%) |
| **Total assets and regulatory deferral account** | **$ 1,681,773** | **$ 1,526,938** | **$ 1,581,709** | **$ 154,835** | **10.1%** |
| **Liabilities** | | | | | |
| Current | | | | | |
| Payables and accruals | | | | | |
| Trade | 20,969 | 19,415 | 23,393 | 1,554 | 8.0% |
| Non-trade | 4,822 | 3,453 | 5,579 | 1,369 | 39.6% |
| Interest on long term debt | 2,292 | 1,400 | 3,062 | 892 | 63.7% |
| Halifax Regional Municipality | 5,011 | (2,613) | 5,047 | 7,624 | 291.8% |
| Contractor and customer deposits | 1,617 | 3,394 | 1,095 | (1,777) | (52.4%) |
| Current portion of long term debt | 32,881 | 56,933 | 39,832 | (24,052) | (42.2%) |
| Unearned revenue | 2,766 | 2,590 | 157 | 176 | 6.8% |
| | 70,358 | 84,572 | 78,163 | (14,214) | (16.8%) |
| Long term debt | 260,089 | 179,483 | 196,622 | 80,606 | 44.9% |
| Deferred contributions | 122,695 | 110,394 | 97,673 | 12,301 | 11.1% |
| Total liabilities | 453,141 | 374,449 | 372,458 | 78,692 | 21.0% |
| **Equity** | | | | | |
| Accumulated capital surplus | 1,221,056 | 1,105,151 | 1,195,016 | 115,905 | 10.5% |
| Accumulated operating surplus | 4,879 | 28,925 | 9,233 | (24,046) | (83.1%) |
| Operating surplus used to fund capital | 12,380 | 12,380 | 12,380 | (0) | (0.0%) |
| Deficiency of revenues over expenditures | (9,684) | 6,033 | (7,381) | (15,717) | (260.5%) |
| Total equity | 1,228,632 | 1,152,489 | 1,209,248 | 76,143 | 6.6% |
| **Total liabilities and equity** | **$ 1,681,773** | **$ 1,526,938** | **$ 1,581,706** | **$ 154,835** | **10.1%** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - ALL SERVICES - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **Operating revenues** | | | | | | | | |
| Water | $ 47,378 | $ 46,733 | $ 54,832 | 86.41% | $ 645 | 1.38% | $ (7,454) | (13.59%) |
| Wastewater | 77,432 | 77,096 | 89,330 | 86.68% | 336 | 0.44% | (11,897) | (13.32%) |
| Stormwater site generated service | 6,878 | 6,757 | 8,864 | 77.60% | 121 | 1.79% | (1,986) | (22.40%) |
| Stormwater right of way service | 5,430 | 5,429 | 6,515 | 83.33% | 1 | 0.01% | (1,086) | (16.67%) |
| Fire protection (public and private) | 8,173 | 8,149 | 9,804 | 83.36% | 24 | 0.29% | (1,631) | (16.64%) |
| Other services and fees | 1,543 | 1,274 | 1,551 | 99.49% | 269 | 21.10% | (8) | (0.51%) |
| Late payment and other connection fees | 460 | 456 | 640 | 71.94% | 4 | 0.94% | (180) | (28.06%) |
| Miscellaneous | 578 | 457 | 524 | 110.38% | 121 | 26.46% | 54 | 10.38% |
| | **147,871** | **146,351** | **172,059** | **85.94%** | **1,520** | **1.04%** | **(24,188)** | **(14.06%)** |
| **Operating expenditures** | | | | | | | | |
| Water supply and treatment | 12,659 | 13,046 | 13,661 | 92.66% | (387) | (2.97%) | (1,002) | (7.34%) |
| Water transmission and distribution | 12,980 | 9,923 | 14,066 | 92.28% | 3,057 | 30.81% | (1,086) | (7.72%) |
| Wastewater collection | 12,426 | 11,588 | 14,346 | 86.62% | 838 | 7.24% | (1,920) | (13.38%) |
| Stormwater collection | 5,202 | 4,218 | 5,816 | 89.44% | 984 | 23.32% | (614) | (10.56%) |
| Wastewater treatment | 21,698 | 19,644 | 26,368 | 82.29% | 2,054 | 10.46% | (4,670) | (17.71%) |
| Engineering and technology services | 15,635 | 12,031 | 17,757 | 88.05% | 3,604 | 29.96% | (2,122) | (11.95%) |
| Regulatory compliance services | 4,443 | 3,688 | 5,922 | 75.03% | 755 | 20.48% | (1,479) | (24.97%) |
| Customer services | 3,890 | 3,680 | 4,507 | 86.32% | 210 | 5.71% | (617) | (13.68%) |
| Corporate services | 3,340 | 2,465 | 3,743 | 89.24% | 875 | 35.50% | (403) | (10.76%) |
| Administration services | 4,594 | 3,767 | 10,267 | 44.75% | 827 | 21.96% | (5,673) | (55.25%) |
| Depreciation and amortization | 29,587 | 26,960 | 34,406 | 85.99% | 2,627 | 9.74% | (4,819) | (14.01%) |
| | **126,455** | **111,010** | **150,859** | **83.82%** | **15,445** | **13.91%** | **(24,404)** | **(16.18%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **21,417** | **35,341** | **21,201** | **101.02%** | **(13,925)** | **(39.40%)** | **216** | **1.02%** |
| **Financial and other revenues** | | | | | | | | |
| Interest | 91 | 249 | 383 | 23.74% | (158) | (63.48%) | (292) | (76.26%) |
| Other | 528 | 407 | 615 | 85.84% | 121 | 29.67% | (87) | (14.16%) |
| | **619** | **656** | **998** | **62.00%** | **(37)** | **(5.68%)** | **(379)** | **(38.00%)** |
| **Financial and other expenditures** | | | | | | | | |
| Interest on long term debt | 7,523 | 5,473 | 9,375 | 80.24% | 2,050 | 37.45% | (1,853) | (19.76%) |
| Repayment on long term debt | 18,057 | 18,774 | 24,078 | 75.00% | (717) | (3.82%) | (6,020) | (25.00%) |
| Amortization of debt discount | 203 | 183 | 245 | 82.97% | 20 | 11.15% | (42) | (17.03%) |
| Dividend/grant in lieu of taxes | 5,823 | 5,501 | 7,031 | 82.81% | 322 | 5.85% | (1,209) | (17.19%) |
| Other | 113 | 33 | 175 | 64.35% | 80 | 241.72% | (62) | (35.65%) |
| | **31,719** | **29,964** | **40,905** | **77.54%** | **1,755** | **5.86%** | **(9,186)** | **(22.46%)** |
| **Earnings (loss) for the year** | **$ (9,684)** | **$ 6,033** | **$ (18,706)** | **51.77%** | **$ (15,717)** | **(260.51%)** | **$ 9,023** | **(48.23%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - WATER - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **Operating revenues - Water** | | | | | | | | |
| Water | $ 47,378 | $ 46,733 | $ 54,832 | 86.41% | $ 645 | 1.38% | $ (7,454) | (13.59%) |
| Public fire protection | 6,736 | 6,736 | 8,083 | 83.33% | (0) | (0.00%) | (1,347) | (16.67%) |
| Private fire protection | 1,437 | 1,413 | 1,721 | 83.48% | 24 | 1.68% | (284) | (16.52%) |
| Bulk water stations | 191 | 239 | 369 | 51.76% | (48) | (20.07%) | (178) | (48.24%) |
| Late payment and other connection fees | 155 | 148 | 205 | 75.74% | 7 | 5.06% | (50) | (24.26%) |
| Miscellaneous | 287 | 250 | 269 | 106.76% | 37 | 14.80% | 18 | 6.76% |
| | **56,184** | **55,519** | **65,480** | **85.80%** | **665** | **1.20%** | **(9,295)** | **(14.20%)** |
| **Operating expenditures - Water** | | | | | | | | |
| Water supply and treatment | 12,659 | 13,046 | 13,661 | 92.66% | (387) | (2.97%) | (1,002) | (7.34%) |
| Water transmission and distribution | 12,980 | 9,923 | 14,066 | 92.28% | 3,057 | 30.81% | (1,086) | (7.72%) |
| Engineering and technology services | 6,030 | 4,566 | 6,412 | 94.05% | 1,464 | 32.07% | (382) | (5.95%) |
| Regulatory compliance services | 1,452 | 883 | 1,647 | 88.13% | 569 | 64.39% | (195) | (11.87%) |
| Customer services | 1,984 | 1,966 | 2,299 | 86.30% | 18 | 0.92% | (315) | (13.70%) |
| Corporate services | 1,703 | 1,366 | 1,909 | 89.23% | 337 | 24.70% | (206) | (10.77%) |
| Administration services | 2,288 | 2,060 | 5,236 | 43.70% | 228 | 11.08% | (2,948) | (56.30%) |
| Depreciation and amortization | 11,807 | 10,944 | 12,959 | 91.11% | 863 | 7.89% | (1,152) | (8.89%) |
| | **50,904** | **44,754** | **58,189** | **87.48%** | **6,150** | **13.74%** | **(7,286)** | **(12.52%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **5,280** | **10,765** | **7,290** | **72.43%** | **(5,485)** | **(50.95%)** | **(2,010)** | **(27.57%)** |
| **Financial and other revenues** | | | | | | | | |
| Interest | 185 | 242 | 372 | 49.78% | (57) | (23.46%) | (187) | (50.22%) |
| Other | 447 | 327 | 458 | 97.52% | 120 | 36.65% | (11) | (2.48%) |
| | **632** | **569** | **830** | **76.13%** | **63** | **11.08%** | **(198)** | **(23.87%)** |
| **Financial and other expenditures** | | | | | | | | |
| Interest on long term debt | 3,196 | 2,072 | 4,109 | 77.79% | 1,124 | 54.25% | (913) | (22.21%) |
| Repayment on long term debt | 5,827 | 5,100 | 6,997 | 83.28% | 727 | 14.26% | (1,170) | (16.72%) |
| Amortization of debt discount | 86 | 72 | 112 | 76.19% | 14 | 18.89% | (27) | (23.81%) |
| Dividend/grant in lieu of taxes | 4,976 | 4,729 | 6,005 | 82.86% | 247 | 5.21% | (1,029) | (17.14%) |
| Other | 104 | 30 | 130 | 80.12% | 74 | 247.85% | (26) | (19.88%) |
| | **14,189** | **12,003** | **17,353** | **81.76%** | **2,186** | **18.21%** | **(3,165)** | **(18.24%)** |
| **Loss for the year** | **$ (8,276)** | **$ (669)** | **$ (9,233)** | **89.64%** | **$ (7,607)** | **1137.10%** | **$ 957** | **(10.36%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - WASTEWATER - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **Operating revenues - Wastewater** | | | | | | | | |
| Wastewater | $ 77,432 | $ 77,096 | $ 89,330 | 86.68% | $ 336 | 0.44% | $ (11,897) | (13.32%) |
| Leachate and other contract revenue | 453 | 458 | 507 | 89.41% | (5) | (1.08%) | (54) | (10.59%) |
| Septage tipping fees | 714 | 482 | 570 | 125.26% | 232 | 48.13% | 144 | 25.26% |
| Overstrength surcharge | 118 | 0 | 0 | 0.00% | 118 | 0.00% | 118 | 0.00% |
| Airplane effluent | 67 | 95 | 105 | 63.72% | (28) | (29.57%) | (38) | (36.28%) |
| Late payment and other connection fees | 252 | 243 | 253 | 99.58% | 9 | 3.80% | (1) | (0.42%) |
| Miscellaneous | 147 | 117 | 187 | 78.17% | 30 | 25.24% | (41) | (21.83%) |
| | **79,183** | **78,491** | **90,952** | **87.06%** | **692** | **0.88%** | **(11,769)** | **(12.94%)** |
| **Operating expenditures - Wastewater** | | | | | | | | |
| Wastewater collection | 12,426 | 11,588 | 14,346 | 86.62% | 838 | 7.24% | (1,920) | (13.38%) |
| Wastewater treatment | 21,698 | 19,644 | 26,368 | 82.29% | 2,054 | 10.46% | (4,670) | (17.71%) |
| Engineering and technology services | 7,876 | 6,165 | 9,335 | 84.38% | 1,711 | 27.76% | (1,459) | (15.62%) |
| Regulatory compliance services | 1,492 | 1,292 | 1,889 | 79.00% | 200 | 15.51% | (397) | (21.00%) |
| Customer services | 1,757 | 1,574 | 2,029 | 86.57% | 183 | 11.60% | (272) | (13.43%) |
| Corporate services | 1,473 | 989 | 1,651 | 89.22% | 484 | 48.94% | (178) | (10.78%) |
| Administration services | 2,064 | 1,539 | 4,528 | 45.58% | 525 | 34.10% | (2,464) | (54.42%) |
| Depreciation and amortization | 15,188 | 13,665 | 18,396 | 82.56% | 1,523 | 11.15% | (3,208) | (17.44%) |
| | **63,975** | **56,456** | **78,542** | **81.45%** | **7,519** | **13.32%** | **(14,567)** | **(18.55%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **15,208** | **22,035** | **12,410** | **122.55%** | **(6,827)** | **(30.98%)** | **2,798** | **22.55%** |
| **Financial and other revenues** | | | | | | | | |
| Interest | 108 | 90 | 139 | 77.77% | 18 | 20.01% | (31) | (22.23%) |
| Other | 81 | 80 | 157 | 51.66% | 1 | 1.15% | (76) | (48.34%) |
| | **189** | **170** | **296** | **63.93%** | **19** | **11.13%** | **(107)** | **(36.07%)** |
| **Financial and other expenditures** | | | | | | | | |
| Interest on long term debt | 3,356 | 2,782 | 4,122 | 81.42% | 574 | 20.65% | (766) | (18.58%) |
| Repayment on long term debt | 10,251 | 11,605 | 14,587 | 70.27% | (1,354) | (11.67%) | (4,337) | (29.73%) |
| Amortization of debt discount | 95 | 91 | 104 | 91.04% | 4 | 4.40% | (9) | (8.96%) |
| Dividend/grant in lieu of taxes | 699 | 656 | 844 | 82.76% | 43 | 6.51% | (146) | (17.24%) |
| Other | 8 | 3 | 45 | 18.69% | 5 | 180.35% | (37) | (81.31%) |
| | **14,409** | **15,137** | **19,703** | **73.13%** | **(728)** | **(4.81%)** | **(5,294)** | **(26.87%)** |
| **Earnings (loss) for the year** | **$ 988** | **$ 7,068** | **$ (6,998)** | **(14.11%)** | **$ (6,080)** | **(86.03%)** | **$ 7,985** | **(114.11%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - STORMWATER - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **Operating revenues - Stormwater** | | | | | | | | |
| Stormwater site generated service | $ 6,878 | $ 6,757 | $ 8,864 | 77.60% | $ 121 | 1.79% | $ (1,986) | (22.40%) |
| Stormwater right of way service | 5,430 | 5,429 | 6,515 | 83.33% | 1 | 0.01% | (1,086) | (16.67%) |
| Late payment and other connection fees | 53 | 65 | 181 | 29.01% | (12) | (19.11%) | (129) | (70.99%) |
| Miscellaneous | 144 | 90 | 67 | 214.70% | 54 | 60.41% | 77 | 114.70% |
| | **12,504** | **12,341** | **15,627** | **80.02%** | **163** | **1.32%** | **(3,123)** | **(19.98%)** |
| **Operating expenditures - Stormwater** | | | | | | | | |
| Stormwater collection | 5,202 | 4,218 | 5,816 | 89.44% | 984 | 23.32% | (614) | (10.56%) |
| Engineering and technology services | 1,728 | 1,300 | 2,010 | 85.98% | 428 | 32.93% | (282) | (14.02%) |
| Regulatory compliance services | 1,499 | 1,513 | 2,386 | 62.84% | (14) | (0.90%) | (887) | (37.16%) |
| Customer services | 150 | 140 | 179 | 83.60% | 10 | 6.89% | (29) | (16.40%) |
| Corporate services | 164 | 110 | 183 | 89.43% | 54 | 48.79% | (19) | (10.57%) |
| Administration services | 242 | 168 | 503 | 48.15% | 74 | 44.17% | (261) | (51.85%) |
| Depreciation and amortization | 2,591 | 2,351 | 3,050 | 84.96% | 240 | 10.21% | (459) | (15.04%) |
| | **11,576** | **9,800** | **14,127** | **81.94%** | **1,776** | **18.12%** | **(2,551)** | **(18.06%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **928** | **2,541** | **1,500** | **61.87%** | **(1,613)** | **(63.47%)** | **(572)** | **(38.13%)** |
| **Financial and other revenues** | | | | | | | | |
| Interest | (202) | (83) | (128) | 158.11% | (119) | 143.71% | (74) | 58.11% |
| Other | 0 | 0 | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% |
| | **(202)** | **(83)** | **(128)** | **158.11%** | **(119)** | **143.71%** | **(74)** | **58.11%** |
| **Financial and other expenditures** | | | | | | | | |
| Interest on long term debt | 970 | 619 | 1,144 | 84.79% | 351 | 56.75% | (174) | (15.21%) |
| Repayment on long term debt | 1,980 | 2,069 | 2,493 | 79.40% | (89) | (4.31%) | (514) | (20.60%) |
| Amortization of debt discount | 23 | 20 | 28 | 80.15% | 3 | 14.02% | (6) | (19.85%) |
| Dividend/grant in lieu of taxes | 148 | 116 | 182 | 81.36% | 32 | 27.94% | (34) | (18.64%) |
| | **3,121** | **2,824** | **3,849** | **81.10%** | **297** | **10.53%** | **(727)** | **(18.90%)** |
| **Earnings (loss) for the year** | **$ (2,395)** | **$ (366)** | **$ (2,476)** | **96.74%** | **$ (2,029)** | **554.65%** | **$ 81** | **(3.26%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - REGULATED AND UNREGULATED ACTIVITIES - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget $ Remaining | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **REGULATED ACTIVITIES** | | | | | | | | |
| **Operating revenues** | | | | | | | | |
| Water | $ 47,378 | $ 46,733 | $ 54,832 | 86.41% | $ 645 | 1.38% | $ (7,454) | (13.59%) |
| Wastewater | 77,432 | 77,096 | 89,330 | 86.68% | 336 | 0.44% | (11,897) | (13.32%) |
| Stormwater | 12,307 | 12,186 | 15,379 | 80.03% | 121 | 1.00% | (3,072) | (19.97%) |
| Public fire protection | 6,736 | 6,736 | 8,083 | 83.33% | (0) | (0.00%) | (1,347) | (16.67%) |
| Private fire protection | 1,437 | 1,413 | 1,721 | 83.48% | 24 | 1.68% | (284) | (16.52%) |
| Miscellaneous | 1,347 | 1,152 | 1,532 | 87.90% | 195 | 16.94% | (185) | (12.10%) |
| | **146,637** | **145,316** | **170,878** | **85.81%** | **1,321** | **0.91%** | **(24,240)** | **(14.19%)** |
| **Operating expenditures** | | | | | | | | |
| Water supply and treatment | 12,655 | 13,041 | 13,661 | 92.63% | (386) | (2.96%) | (1,006) | (7.37%) |
| Water transmission and distribution | 12,980 | 9,923 | 14,066 | 92.28% | 3,057 | 30.81% | (1,086) | (7.72%) |
| Wastewater collection | 12,372 | 11,540 | 14,285 | 86.61% | 833 | 7.22% | (1,912) | (13.39%) |
| Stormwater collection | 5,202 | 4,218 | 5,816 | 89.44% | 984 | 23.32% | (614) | (10.56%) |
| Wastewater treatment | 20,953 | 18,964 | 25,571 | 81.94% | 1,988 | 10.49% | (4,618) | (18.06%) |
| Engineering and technology services | 15,635 | 12,031 | 17,757 | 88.05% | 3,604 | 29.96% | (2,122) | (11.95%) |
| Regulatory compliance services | 4,443 | 3,688 | 5,922 | 75.03% | 755 | 20.48% | (1,479) | (24.97%) |
| Customer services | 3,852 | 3,684 | 4,467 | 86.23% | 168 | 4.56% | (615) | (13.77%) |
| Corporate services | 3,325 | 2,461 | 3,730 | 89.15% | 865 | 35.14% | (405) | (10.85%) |
| Administration services | 4,501 | 3,734 | 10,130 | 44.43% | 767 | 20.55% | (5,629) | (55.57%) |
| Depreciation and amortization | 29,570 | 26,943 | 34,371 | 86.03% | 2,627 | 9.75% | (4,801) | (13.97%) |
| | **125,489** | **110,226** | **149,776** | **83.78%** | **15,263** | **13.85%** | **(24,287)** | **(16.22%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **21,148** | **35,090** | **21,101** | **100.22%** | **(13,942)** | **(39.73%)** | **47** | **0.22%** |
| **Financial and other revenues** | | | | | | | | |
| Interest | 91 | 249 | 511 | 17.80% | (158) | (63.48%) | (420) | (82.20%) |
| Other | 17 | 5 | 28 | 60.20% | 12 | 215.21% | (11) | (39.80%) |
| | **108** | **254** | **539** | **20.02%** | **(146)** | **(57.58%)** | **(431)** | **(79.98%)** |
| **Financial and other expenditures** | | | | | | | | |
| Interest on long term debt | 7,523 | 5,473 | 9,375 | 80.24% | 2,050 | 37.45% | (1,853) | (19.76%) |
| Repayment on long term debt | 18,057 | 18,774 | 24,078 | 75.00% | (717) | (3.82%) | (6,020) | (25.00%) |
| Amortization of debt discount | 203 | 183 | 245 | 82.97% | 20 | 11.15% | (42) | (17.03%) |
| Dividend/grant in lieu of taxes | 5,823 | 5,501 | 7,031 | 82.81% | 322 | 5.85% | (1,209) | (17.19%) |
| | **31,606** | **29,931** | **40,730** | **77.60%** | **1,675** | **5.60%** | **(9,123)** | **(22.40%)** |
| **Earnings (loss) for the year - Regulated** | **$ (10,350)** | **$ 5,413** | **$ (19,089)** | **54.22%** | **$ (15,764)** | **(291.19%)** | **$ 8,739** | **(45.78%)** |

**HALIFAX WATER**
**UNAUDITED STATEMENT OF EARNINGS - REGULATED AND UNREGULATED ACTIVITIES - NSUARB**
**APRIL 1, 2024 - JANUARY 31, 2025 (10 MONTHS)**
**ACTUAL YEAR TO DATE COMPLETE: 83.33%**

| | ACTUAL YEAR TO DATE THIS YEAR '000 | ACTUAL YEAR TO DATE LAST YEAR '000 | APR 1/24 MAR 31/25 BUDGET '000 | ACTUAL YEAR TO DATE as % of BUDGET | From Prior Year $ Change | From Prior Year % Change | Actual to Budget 33 | Actual to Budget % Remaining |
|---|---|---|---|---|---|---|---|---|
| **UNREGULATED ACTIVITIES** | | | | | | | | |
| **Operating revenues** | | | | | | | | |
| Septage tipping fees | $ 714 | $ 482 | $ 570 | 125.26% | $ 232 | 48.13% | $ 144 | 25.26% |
| Leachate and other contract revenue | 453 | 458 | 507 | 89.41% | (5) | (1.08%) | (54) | (10.59%) |
| Airplane effluent | 67 | 95 | 105 | 63.72% | (28) | (29.57%) | (38) | (36.28%) |
| | **1,234** | **1,035** | **1,182** | **104.42%** | **199** | **19.22%** | **52** | **4.42%** |
| **Operating expenditures** | | | | | | | | |
| Water supply and treatment | 4 | 5 | 0 | 0.00% | (2) | (29.16%) | 4 | 0.00% |
| Wastewater treatment | 745 | 680 | 797 | 93.53% | 66 | 9.66% | (52) | (6.47%) |
| Wastewater collection | 54 | 48 | 61 | 88.26% | 6 | 12.05% | (7) | (11.74%) |
| Sponsorships and donations | 38 | 1 | 80 | 47.88% | 37 | 3473.32% | (42) | (52.12%) |
| Corporate services | 15 | 4 | 13 | 113.67% | 10 | 233.33% | 2 | 13.67% |
| Administration services | 93 | 28 | 97 | 95.65% | 65 | 233.33% | (4) | (4.35%) |
| Depreciation and amortization | 17 | 17 | 34 | 47.91% | (1) | (4.69%) | (18) | (52.09%) |
| | **966** | **784** | **1,083** | **89.19%** | **182** | **23.17%** | **(117)** | **(10.81%)** |
| **Earnings from operations before financial and other revenues and expenditures** | **268** | **251** | **99** | **270.54%** | **17** | **6.89%** | **169** | **170.54%** |
| **Financial and other revenues** | | | | | | | | |
| Other - leases and rentals | 338 | 222 | 368 | 91.71% | 115 | 51.85% | (30) | (8.29%) |
| Other - energy projects | 173 | 179 | 219 | 79.25% | (6) | (3.39%) | (45) | (20.75%) |
| | **511** | **402** | **587** | **87.07%** | **109** | **27.18%** | **(76)** | **(12.93%)** |
| **Financial and other expenditures** | | | | | | | | |
| Other | 113 | 33 | 175 | 64.35% | 80 | 241.72% | (62) | (35.65%) |
| | **113** | **33** | **175** | **64.35%** | **80** | **241.72%** | **(62)** | **(35.65%)** |
| **Earnings for the year - Unregulated** | **$ 666** | **$ 620** | **$ 511** | **130.51%** | **$ 47** | **7.54%** | **$ 156** | **30.51%** |
| **Total earnings (loss) for the year (Regulated and Unregulated)** | **$ (9,684)** | **$ 6,033** | **$ (18,578)** | **52.12%** | **$ (15,717)** | **(260.51%)** | **$ 8,895** | **(47.88%)** |

# ITEM #4.2

**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: A63D6874EBC1467...
Louis de Montbrun, CPA, CA, Director of Corporate Services/CFO
DocuSigned by: 0BC1976770F488...
Josh DeYoung, P.Eng., Director, Engineering & Capital Infrastructure

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F0...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 12, 2025

**SUBJECT:** **Capital Expenditures for the ten months ended January 31, 2025**

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## ORIGIN

Financial information reporting.

## BACKGROUND

At the March 6, 2025, meeting of the Halifax Water Audit and Finance Committee, the attached Capital Expenditures as of January 31, 2025, report was reviewed and discussed. The Committee approved forwarding the report to the Halifax Water Board for their information.

## DISCUSSION

No additional information was requested to be brought forward to the Halifax Water Board meeting following the discussion of the attached at the Committee meeting.

## ATTACHMENT

1. Report to the Halifax Water Audit & Finance Committee dated February 27, entitled Item #4 – Capital Expenditures for the Ten Months ended January 31, 2025.

# ITEM #4

**Halifax Water Audit and Finance Committee**

**March 6, 2025**

**TO:** Chair and Members of the Halifax Regional Water Commission Audit and Finance Committee

**SUBMITTED BY:**

Signed by:
A65D6874EBC1467...

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

DocuSigned by:
0BC19767707F488...

Josh DeYoung, P.Eng.
Director, Engineering & Capital Infrastructure

**APPROVED:**

Signed by:
Kenda MacKenzie
0C084AC815794F0...

Kenda MacKenzie, P.Eng.
General Manager & CEO

**DATE:** February 27, 2025

**SUBJECT:** **Capital Expenditures for the ten months ended January 31, 2025**

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## ORIGIN

The Corporate Balanced Scorecard (CBS) identifies the percentage of current year capital budget spent by the end of the fiscal year as a critical success factor and sets a target of 70-80%. There is an additional CBS target of $135 million in capital spend during the year.

## RECOMMENDATION

It is recommended the Audit and Finance Committee forward the Capital Expenditures for the ten months ended January 31, 2025, to the Halifax Water Board for their information.

## BACKGROUND

The Halifax Regional Water Commission (Halifax Water) Board reviews financial information throughout the year. Halifax Water's 2019 *Integrated Resource Plan* (IRP) identifies a 30-year

capital investment plan valued at $2.7 Billion (net present value - 2019). In relation to the IRP, the capital budget program focuses on providing required infrastructure for asset renewal, regulatory compliance, and growth. The IRP calls for delivery of an average of $135 million in capital projects per year. Halifax Water's annual capital budget, and capability to deliver capital projects, has not yet reached this level.

**DISCUSSION**

Below is the breakdown by asset class and project status of the expenditures for the ten months ended January 31, 2025. The total budget available of $358.4 million represents total approved budgets as at January 31, 2025. Halifax Water has spent $201.1 million to date on active projects, $112.7 million incurred prior to April 1, 2024, and expenditures of $88.4 million in the current fiscal year.

The total capital budget remaining to be spent at January 31, 2025 is $157.3 million.

Total expenditures as a percentage of the total budget available is 56.1%. Expenditures in the current fiscal year as a percentage of the current year capital budget is 58.0%.

The average capital spend per month compared to prior year has increased from $4.8 million to $8.8 million.

**Capital Expenditure Report**

| Budget Category | Total Budget Available | Expenditures to March 31, 2024 | Expenditures April 1, 2024 to January 31, 2025 | Total Expenditures to January 31, 2025 | Remaining Budget Available as of January 31, 2025 | Total Expenditures to January 31, 2025 as a Percentage of Total Budget Available |
|---|---|---|---|---|---|---|
| Water | $ 108,177,160 | $ 41,297,364 | $ 30,539,690 | $ 71,837,054 | $ 36,340,106 | 66.4% |
| Wastewater | 127,659,248 | 34,103,123 | 28,019,515 | 62,122,638 | 65,536,610 | 48.7% |
| Stormwater | 27,235,130 | 9,682,314 | 9,469,579 | 19,151,893 | 8,083,237 | 70.3% |
| Corporate | 94,319,077 | 27,646,935 | 20,351,197 | 47,998,132 | 46,320,945 | 50.9% |
| District Energy | 1,030,000 | - | - | - | 1,030,000 | 0.0% |
| | $ 358,420,614 | $ 112,729,735 | $ 88,379,982 | $ 201,109,717 | $ 157,310,897 | 56.1% |

The achievement of annual targets for the current fiscal year have been significantly influenced by the timing of several major projects. The NSUARB has granted approval for the Burnside Operations Centre, enabling the project team to commence construction in the spring of 2025. The procurement process for the Biosolids Processing Facility continues. The Fairview Cove Trunk Sewer is anticipated to be tendered in 2025, contingent upon the finalization of land agreements with the relevant parties. Similarly, the Highway 118 water main crossing is projected to be tendered in 2025. The Mill Cove WWTF Upgrades project is undergoing a project delivery review.

The timing of these projects in achieving their respective milestones will have a substantial impact on capital expenditures for the current fiscal year. It is also common to have projects see increases in capital recorded in the final months of the year as work is completed and project documentation is received, especially on HRM integrated works.

Report prepared by: Signed by: Warren Brake FF7DA207844542C...

Warren Brake, Manager of Accounting, (902) 719-4814

# ITEM # 4.3
**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: A65D6874EBC1467... Louis de Montbrun, CPA, CA Director, Corporate Services/CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794E6... Kenda MacKenzie, P.Eng., Acting CEO & General Manager

**DATE:** March 19, 2025

**SUBJECT:** **2025 Spring Debenture**

---

## ORIGIN

Halifax Regional Water Commission (Halifax Water) participation in the Spring 2025 Nova Scotia Finance and Treasury Board Municipal Finance Division (NSFTB) debenture issue secure debt financing for 2024/25 additions to utility plant in service and re-finance a balloon payment on existing debt.

## RECOMMENDATION

It is recommended that the Halifax Water Board approve the following motion:

1. Approve the financing of $34,000,000 with a thirty-year amortization term and finance over ten years. The maximum all-inclusive rate is not to exceed 6.5%.

## BACKGROUND

At the March 6, 2025, meeting of the Halifax Water Audit and Finance Committee (the Committee), the attached 2025 Spring Debenture report dated March 3, 2025, was reviewed and discussed.

## DISCUSSION

No additional information was requested to be brought forward to the Halifax Water Board meeting following the discussion of the attached at the Committee meeting.

## BUDGET IMPLICATIONS

The Nova Scotia Finance and Treasury Board Municipal Finance Division (NSFTB) is recommending using an interest rate not to exceed 6.5%. If the interest rate is to reach 6.5%, interest expense for 2025-26 will increase $312,500

## ATTACHMENT

1. Report to the Halifax Water Audit and Finance Committee regarding the 2025 Spring Debenture including the Borrowing Resolution.

Report Prepared by: Signed by: Fabio Alonso 09260088315C7474...
Fabio Alonso, Manager, Finance

Financial Reviewed by: Signed by: A65D6874EBC1467...
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

# ITEM #5
**Halifax Water Board**
**March 6, 2025**

**TO:** Chair and Members of the Halifax Regional Water Commission Audit and Finance Committee

**SUBMITTED BY:** Signed by: A05D0874EBC1407...
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815704F6...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 3, 2025

**SUBJECT:** **Spring 2025 Debenture**

---

## ORIGIN

Halifax Regional Water Commission (Halifax Water) participation in the Spring 2025 Nova Scotia Finance and Treasury Board Municipal Finance Division (NSFTB) debenture issue secure debt financing for 2025/26 additions to utility plant in service.

## RECOMMENDATION

It is recommended that the Halifax Water Audit and Finance Committee recommend the Board approve the following motions:

1. Approve the financing of $34,000,000 with a thirty-year amortization term and finance over ten years. The maximum all-inclusive rate is not to exceed 6.5%.

## BACKGROUND

Halifax Water is legally required to borrow through the NSFTB. The borrowing proposed in this report is estimated using the One Year Business Plan, the approved Operating and Capital Budgets for 2025/26, and the rate schedule approved by the Nova Scotia Utility and Review Board.

## DISCUSSION

The 2025/26 Operating Budget was prepared based on issuing new debt of $68.0 million to finance water, wastewater, and stormwater additions to utility plant in service. The $68.0 million will be applied to water, wastewater, and stormwater as follows:

| | |
|---|---|
| Water | $30.0 million |
| Wastewater | $30.0 million |
| Stormwater | $8.0 million |

Halifax Water is recommending issuing a portion of the new debt in the Spring of 2025 as follows:

| | |
|---|---|
| Water | $15.0 million |
| Wastewater | $15.0 million |
| Stormwater | $4.0 million |

In the recommendation, Halifax Water uses a rate of 6.5% as recommended by NSFTB. This would be the upper limit that Halifax Water can finance debt. If the actual interest rate is greater than 6.5%, a revised report will be required for the Board. If the actual interest rate is lower than 6.5%, a revised report is not required.

The final interest rates and timing of the debt issues will not be known with certainty until NSFTB concludes the formal debenture process.

Halifax Water's debt is covered by a blanket guarantee approved by Halifax Regional Municipality (HRM) Council in September 2014. The blanket guarantee will apply to all Halifax Water debt with a condition that Halifax Water must maintain a debt service ratio of 35% or less. Halifax Water's debt service ratio is 17.06% as of January 31, 2025. The debt service ratio is calculated as the cost of debt interest, principal and discount payments divided by the total Operating Revenue as found on the income statement (NSUARB format).

Halifax Water's outstanding debt on January 31, 2025 (including the current portion) was $260.1 million, and debt is projected to remain the same until year end as no principal payments are due prior to March 31,2025.

## BUDGET IMPLICATIONS

The 2025/26 budget includes $33.1 million in debt servicing costs. Halifax Water's capital financing strategy is designed to maintain a debt service ratio of 35% or less; and to use a mixture of infrastructure funding, development related charges (reserves), depreciation, and debt.

The budget was based on an all-inclusive rate of 5.00% on both new and refinanced debt. The Spring 2024 debenture had an all-inclusive rate of 4.71% and the expectation is this Spring refinancing will be similar.

If Halifax Water issues $34.0 million of debt in Spring and $49.4 million in the Fall, principal and interest costs will decrease over what had been budgeted in 2024/25 by $0.6 million.

Attachment 2 provides a cash flow estimate for the 2025/26 fiscal year. The model estimates capital expenditure for the year to be $133.0 million. If expenditures begin to trend higher than projected, Halifax Water would issue additional debt in November 2025.

## ATTACHMENTS

1. Borrowing Resolution for $34.0 million of debt.
2. Cash Flow Model for 2025/26 based on approved Operating and Capital Budgets and anticipated cash flow.

Report Prepared by: Signed by: Fabio Alonso 092600B315C7474...
Fabio Alonso, Manager of Finance

HALIFAX REGIONAL WATER COMMISSION
BORROWING RESOLUTION

WHEREAS the Halifax Regional Water Commission (Halifax Water), is incorporated under the provisions of the *Halifax Regional Water Commission Act*, Ch. 55 of the Acts of 2007 (the "Act");

AND WHEREAS the Act provides that Halifax Water has power to borrow such sums as may be authorized and approved by the Board of the Commission for the purposes of the Commission, subject to the approval of the Nova Scotia Utility and Review Board;

AND WHEREAS Halifax Water wishes to borrow $34,000,000 for the purpose of financing regular additions to utility plant in service for a 30-year amortization period;

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

BE IT RESOLVED THAT:

1. Under the authority of Section 16 of the *Act*, Halifax Water borrow from the Nova Scotia Finance and Treasury Board Municipal Finance Division, for the purpose set forth above, a sum or sums not exceeding $34,000,000 with a thirty-year amortization term and finance over ten years. The maximum all-inclusive rate is not to exceed 6.5% percent;

2. The sum noted above be borrowed by the issue of debentures of Halifax Water to such an amount as Halifax Water deems necessary and that the debentures be arranged with the Nova Scotia Finance and Treasury Board Municipal Finance Division, with interest to be paid semi-annually and principal payments made annually; and

3. This resolution remains in force for a period of not more than 12 months from the passing of this resolution.

I certify the above to be a true copy of a Resolution approved at a meeting of the Halifax Water Board of Directors held on March 27, 2025.

_____
Liana Rintoul
General Counsel and Corporate Secretary

**Cash Flow Model for 2024-25**

| | Original Budget | Forecast | Adjustments for Cash Flow | Cash Flow | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Total | Variance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Operating Revenues** | | | | | | | | | | | | | | | | | | | |
| Revenues | 158,308,577 | 158,308,577 | - | 158,308,577 | 14,479,679 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 13,192,381 | 158,308,577 | - |
| Seasonality adjustment | - | - | | - | - | 300,000 | 300,000 | | | 500,000 | 500,000 | 500,000 | | | 300,000 | 300,000 | 300,000 | - | - |
| Fire Protection | 9,794,000 | 9,794,000 | - | 9,794,000 | | | | | | | 9,794,000 | | | | | | | 9,794,000 | - |
| HRM SW Right of Way | 6,515,400 | 6,515,400 | - | 6,515,400 | | | | | | | 6,515,400 | | | | | | | 6,515,400 | - |
| | 174,617,977 | 174,617,977 | - | 174,617,977 | 14,479,679 | 12,892,381 | 12,892,381 | 13,192,381 | 13,192,381 | 13,692,381 | 30,001,781 | 13,692,381 | 13,192,381 | 13,192,381 | 12,892,381 | 12,892,381 | 12,892,381 | 174,617,977 | - |
| **Operating Expenses** | | | | | | | | | | | | | | | | | | | |
| Monthly Expenses | 129,081,763 | 129,081,763 | - 2,600,000 | 126,481,763 | 11,601,328 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 126,481,763 | - |
| Months with a third or special pays | | | 2,600,000 | 2,600,000 | | | | | | 1,300,000 | | | | | 1,300,000 | | | 2,600,000 | - |
| Pension Expense | | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 129,081,763 | 129,081,763 | - | 129,081,763 | 11,601,328 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 11,840,147 | 10,540,147 | 10,540,147 | 10,540,147 | 10,540,147 | 11,840,147 | 10,540,147 | 10,540,147 | 129,081,763 | - |
| **Non Op Revenue** | | | | | | | | | | | | | | | | | | | |
| Interest & Non Op Revenue | 1,085,195 | 1,085,195 | - | 1,085,195 | 92,750 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 1,085,195 | - |
| Provincial Funding | | | - | - | | | | | | | | | | | | | | | - |
| Total | 1,085,195 | 1,085,195 | - | 1,085,195 | 92,750 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 90,433 | 1,085,195 | - |
| **Non Op Expenses** | | | | | | | | | | | | | | | | | | | |
| LT Debt Appropriation | 20,513,855 | 20,513,855 - | 20,513,855 | - | | | | | | | | | | | | | | - | - |
| LT Debt Interest | 12,291,183 | 12,291,183 - | 12,291,183 | - | | | | | | | | | | | | | | - | - |
| LT Debt P Repayment - existing | | | 21,280,027 | 21,280,027 | | | 3,020,412 | | 1,140,000 | | 5,500,000 | 4,746,631 | 6,592,984 | | 280,000 | | | 21,280,027 | - |
| LT Debt I Repayment - existing | 322,704 | | 6,564,178 | 6,564,178 | | 1,322,326 | 1,744,782 | | 193,642 | | 163,350 | 1,227,396 | 1,727,013 | | 185,669 | | | 6,564,178 | - |
| LT Debt P & I Repayment - balloon | - | | 19,096,986 | 19,096,986 | | | 247,043 | 3,114,318 | | | | | 15,735,625 | | | | | 19,096,986 | - |
| Bond Discount | 279,171 | 279,171 - | 279,171 | - | | | | | | | | | | | | | | - | - |
| Dividend | 7,236,050 | 7,236,050 | - | 7,236,050 | 6,589,000 | | | | | | | | | | | | 7,236,050 | 7,236,050 | - |
| Depreciation | 39,923,680 | 39,923,680 - | 39,923,680 | - | | | | | | | | | | | | | | - | - |
| Other | 130,244 | 130,244 | - | 130,244 | | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 10,854 | 130,244 | - |
| Total | 80,696,887 | 80,374,183 - | 26,066,698 | 54,307,485 | 6,589,000 | 1,333,180 | 5,023,091 | 3,125,172 | 1,344,495 | 10,854 | 5,674,204 | 5,984,881 | 24,066,476 | 10,854 | 476,522 | 10,854 | 7,246,904 | 54,307,485 | - |
| Operations Total | - 34,075,478 | - 33,752,774 | 26,066,698 | - 7,686,076 | - 3,617,899 | 1,109,488 | - 2,580,423 | - 382,505 | 1,398,172 | 1,931,814 | 13,877,864 | - 2,742,213 | - 21,323,808 | 2,731,814 | 666,145 | 2,431,814 | - 4,804,236 | - 7,686,076 | - |
| **Capital Expenditures** | | | | | | | | | | | | | | | | | | | |
| Capital Budget | 132,994,000 | 132,994,000 - | 12,097,000 | 120,897,000 | 14,500,000 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 132,994,000 | 12,097,000 |
| Water | 35,055,000 | | | - | | | | | | | | | | | | | | - | - |
| WW | 31,578,000 | | | - | | | | | | | | | | | | | | - | - |
| SW | 24,811,000 | | | - | | | | | | | | | | | | | | - | - |
| Corporate | 41,550,000 | | | - | | | | | | | | | | | | | | - | - |
| District Energy | - | | | | | | | | | | | | | | | | | | |
| Less Capital Additions donated | | | | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 132,994,000 | 132,994,000 - | 12,097,000 | 120,897,000 | 14,500,000 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 11,082,833 | 132,994,000 | 12,097,000 |
| New Long Term Debt | | | | - | | | | | | | | | | | | | | - | - |
| Spring | 34,000,000 | - | - | - | | | 33,745,000 | | | | | | | | | | | 33,745,000 | 33,745,000 |
| Balloon Refinancing | 15,403,516 | 15,403,516 - | 115,526 | 15,287,990 | | | | | | | | 15,403,516 | | | | | | 15,403,516 | 115,526 |
| Fall | 34,000,000 | 34,000,000 - | 255,000 | 33,745,000 | | | | | | | | 33,745,000 | | | | | | 33,745,000 | - |
| Total | 83,403,516 | 49,403,516 - | 370,526 | 49,032,990 | - | - | 33,745,000 | - | - | - | - | 49,148,516 | - | - | - | - | - | 82,893,516 | 33,860,526 |
| **Other Incoming Cash** | | | | | | | | | | | | | | | | | | | |
| CCC - Bedford West | | | | - | | | | | | | | | | | | | | - | - |
| CCC - Other | - | | | - | | | | | | | | | | | | | | - | - |
| Build Canada | - | - | | - | | | | | | | | | | | | | | - | - |
| Energy Rebates & Other External | | | | - | | | | | | | | | | | | | - | - | - |
| Sale of Watershed Land | - | - | | - | | | | | | | | | | | | | | - | - |
| RDC | 20,000,000 | 20,000,000 | | 20,000,000 | 3,000,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 20,400,000 | 400,000 |
| Reserves proceeds | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 20,000,000 | 20,000,000 | - | 20,000,000 | 3,000,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 1,700,000 | 20,400,000 | 400,000 |
| Changes in working capital | | | | | | | | | | | | | | | | | | | |
| Accounts Receivable | | | | - | 1,250,000 | 1,250,000 | 1,000,000 | 750,000 | 500,000 | 250,000 | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | 1,000,000 | 3,000,000 | - | - |
| Inventory | | | | - | | | | | | | | | | | | | | - | - |
| Prepaids | | | | - | | | | | | | | | | | | | | - | - |
| Plant being disposed | | | | - | | | | | | | | | | | | | | - | - |
| | | | | - | | | | | | | | | | | | | | - | - |
| Accounts Payable & Accr Liab | | - | | - | 2,200,000 | 2,200,000 | 1,100,000 | 450,000 | 700,000 | 250,000 | 150,000 | 100,000 | 100,000 | 100,000 | 100,000 | 3,000,000 | 3,800,000 | 1,550,000 | 1,550,000 |
| Deposits | | | | - | | | | | | | | | | | | | | - | - |
| Unearned Revenue | | | | - | | | | | | | | | | | | | | - | - |
| Pre-Retirement Costs | | | | - | | | | | | | | | | | | | | - | - |
| | | | | - | | | | | | | | | | | | | | - | - |
| Gain or loss on assets (check details for cash proceeds) | | | | | | | | | | | | | | | | | | - | - |
| | | | | - | | | | | | | | | | | | | | - | - |
| Other misc variations | | | | | | | | | | | | | | | | | | - | - |
| Balancing | | | | - | | | | | | | | | | | | | | - | - |
| Total | - | - | - | - | 950,000 | 950,000 | 100,000 | 300,000 | 200,000 | - | 100,000 | 50,000 | 50,000 | 50,000 | 50,000 | 2,000,000 | 800,000 | 1,550,000 | 1,550,000 |
| Net Cash Flow | - 63,665,962 | - 97,343,258 | 37,793,172 | - 59,550,087 | - 16,067,899 | 9,223,346 | 21,681,743 | - 9,465,338 | - 8,184,661 | - 7,451,020 | 4,395,030 | 36,973,469 | - 30,756,642 | - 6,701,020 | - 8,766,688 | - 4,951,020 | - 13,387,070 | - 35,836,560 | 23,713,526 |
| Opening Cash Balance | | | | 82,500,000 | 82,500,000 | 66,432,101 | 57,208,755 | 78,890,498 | 69,425,161 | 61,240,499 | 53,789,480 | 58,184,510 | 95,157,979 | 64,401,338 | 57,700,318 | 48,933,630 | 43,982,610 | 82,500,000 | |
| Ending Cash Balance | | | | 22,949,914 | 66,432,101 | 57,208,755 | 78,890,498 | 69,425,161 | 61,240,499 | 53,789,480 | 58,184,510 | 95,157,979 | 64,401,338 | 57,700,318 | 48,933,630 | 43,982,610 | 30,595,541 | 46,663,440 | |
| Peaks & Valleys | | | | | - | - | - | - | - | - | - | Peak | - | - | - | - | Valley | - | |

# ITEM #5.1

**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** DocuSigned by: 0BC19767787F488...
Josh DeYoung, P.Eng., Director, Engineering & Capital Infrastructure

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794E6...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 13, 2025

**SUBJECT:** **Duffus Street Pumping Station - Mechanical & Electrical Upgrades - Funding Request - $6,000,000**

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## ORIGIN

2023/24 & 2024/25 Capital Budget.

## RECOMMENDATION

The Halifax Water Board approve funding in the amount of $6,000,000 for the Duffus Street Pumping Station - Mechanical & Electrical Upgrades project.

## BACKGROUND

The Duffus Street Pump Station (PS) is located at 5211 Duffus Street in Halifax, NS and plays an important role in Halifax's wastewater collection system. The PS receives flows from a large area spanning Fairview, Clayton Park, Rockingham, and the north half of the peninsula (see Attachment 1 – Duffus Street Pump Station – Sewershed Boundary). The station was built in the mid 1970's and went through upgrades in the mid 1990's and in 2012. This station uses three (3) submersible pumps in a wetwell configuration to convey wastewater flow through a 1200 mm High Density Polyethylene (HDPE) forcemain to the Halifax Wastewater Treatment Facility (HWWTF).

Halifax Water has identified that upgrades are required at Duffus Street PS on various mechanical, electrical, structural and control components. Upgrades are required as a series of equipment failures occurred during the summer of 2022, resulting in periods of screened but untreated wastewater discharging into Halifax Harbour as emergency repairs were undertaken. During that period, pumps were replaced in an urgent response to the initial failures, and since that time there has been on-going follow-up activity to meet application specific requirements at the PS. Upgrades include replacing equipment such as deteriorated pump junction boxes and cabling in the wet well, variable frequency drives (VFDs)

and filters, control panels and the HVAC system. The work also includes repairs to corroded steel and concrete components. The recommended upgrades will improve the reliability and serviceability of this station.

In March of 2023, engineering services were awarded to EastPoint Engineering through a competitive procurement process. Detailed design drawings and specifications have progressed through a collaborative process with Operational and Technical Services staff over the past two years and plan to be completed in April 2025. Based on the most recent pre-tender construction cost estimate by EastPoint, the estimated total project cost is $6,000,000 (including net HST).

It is anticipated that the construction tender will be issued in May 2025 using a low-bid procurement process. Construction is expected to proceed in Summer 2025 following funding approval and award.

**BUDGET IMPLICATIONS**

Funding in the amount of $300,000 for Duffus Street Pumping Station - Mechanical & Electrical Upgrades was approved in the 2023/24 Capital Budget (*2.1030, Duffus Street Pumping Station - Mechanical and Electrical Upgrades).*

Funding in the amount of $1,500,000 for Duffus Street Pumping Station - Mechanical & Electrical Upgrades was approved in the 2024/25 Capital Budget (*2.1030, Duffus Street Pumping Station - Mechanical and Electrical Upgrades)*.

Funding in the amount of $1,200,000 for Duffus Street Pumping Station - Mechanical & Electrical Upgrades is available from the 2025/26 Capital Budget (*2.1030, Duffus Street Pumping Station - Mechanical and Electrical Upgrades)*.

Funding in the amount of $3,000,000 for Duffus Street Pumping Station - Mechanical & Electrical Upgrades will be available in future year's Capital Budgets (*Duffus Street Pumping Station - Mechanical and Electrical Upgrades)*.

The proposed expenditure meets the "NO REGRETS- UNAVOIDABLE NEEDS" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "Required to ensure infrastructure system integrity and safety" and "Directly supports the implementation of the Asset Management program". The project meets these criteria based on the following: The current equipment is failing due to age and end of life (Asset Management) and causing treatment performance/operational issues (Infrastructure System Integrity).

**ALTERNATIVES**

There are no recommended alternatives to this work.

The project is considered by Halifax Water staff to be a prudent investment to improve the reliability and serviceability of this infrastructure and reducing the risk of equipment failure.

If the project does not proceed, Halifax Water will continue to operate and maintain the existing system, however, there are operational concerns with this asset in recent years. If another failure occurs, it may result in screened but untreated wastewater being discharged into Halifax Harbour as emergency repairs are undertaken. This will likely be more costly for Operations and less effective than the proactive approach proposed by proceeding with this project.

**ATTACHMENTS**

1. Duffus Street Pump Station Sewershed Boundary
2. Total Project Cost Estimate

| | |
|---|---|
| Report Prepared by: | Matthew Goodick, EIT, Junior Project Engineer |
| Report Reviewed by: | Greg Rice, P.Eng., Manager, Municipal Engineering |
| Financial Reviewed by: | Signed by: A05D0874EBC1407... Louis de Montbrun, CPA, CA Director, Corporate Services/CFO |

# DUFFUS STREET PS & CSO

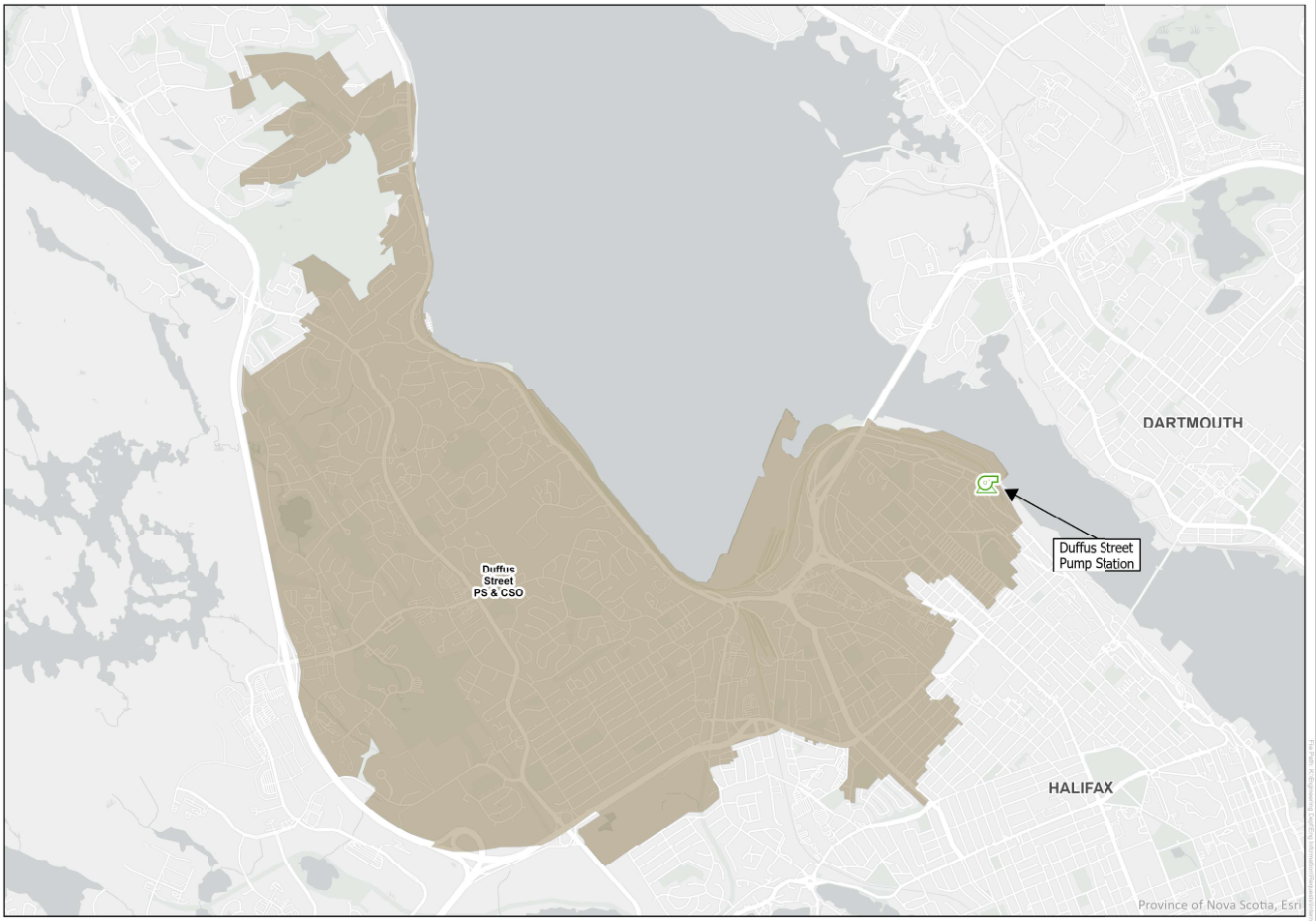
## SEWERSHED

**Duffus Street PS & CSO Pumping Station**

Combined Pumping Station, Public

**Sewershed**

Duffus Street PS and CSO




Drawn By: dsvidfr
Data Source: Halifax Water / HRM
Datum/Proj: NAD83(2011) CSRS v6 - MTM/25 - CGVD2013
Date: Monday, February 24, 2025
Contact: GISProducts@halifaxwater.ca

N

0 250 500 1,000 Metres



STRAIGHT from the SOURCE

Halifax Water

**TOTAL PROJECT COST ESTIMATE**

March 11, 2025

## Duffus Street Pumping Station - Mechanical & Electrical Upgrades

| | |
|---|---|
| **CONSTRUCTION COSTS** | |
| Estimated Construction Cost (Pre-Tender) | $3,765,513 |
| Consultant Costs (Tender & Construction Phase) | $62,380 |
| Contingency Class 1: Detailed Design Pre Tender (10%) | $382,789 |
| Market Volatility Contingency (30%) | $1,148,368 |
| **Construction Costs Sub-Total** | **$5,359,050** |
| **OTHER COSTS (TAXABLE)** | |
| Consultant Costs (Design) | $234,023 |
| QA/QC Testing | $5,000 |
| **Other Costs (Taxable) Sub-Total** | **$239,023** |
| Net HST (4.286%) | $239,933 |
| **OTHER COSTS (NON-TAXABLE)** | |
| Internal Halifax Water Costs | $100,000 |
| **Other Costs (Non-Taxable) Sub-Total** | **$100,000** |
| **SUB-TOTAL** | **$5,938,007** |
| Overhead (1%) | $59,380 |
| **TOTAL PROJECT COST ESTIMATE** | **$5,997,387** |
| **TOTAL PROJECT COST ESTIMATE*** | **$6,000,000** |

** Rounded up, excluding HST*

# ITEM # 6
**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, Chair, and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: Kenda MacKenzie 0C084AC813794F6...
Kenda MacKenzie, P. Eng, General Manager/CEO

**DATE:** March 18, 2025

**SUBJECT:** **Corporate Balanced Scorecard - 2025/26 Program**

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**ORIGIN:**

Annual Corporate Performance Measurement.

**RECOMMENDATION:**

It is recommended that the Halifax Water Board:

1) approve the Corporate Balanced Scorecard (CBS) targets for the 2025/26 fiscal year.
2) request staff to develop a methodology to assess the fiscal health of the utility and to recommend whether the CBS Organizational Award be paid based on the assessment.

**BACKGROUND**

Halifax Water has been utilizing a Corporate Balanced Scorecard to measure performance since 2001.

**DISCUSSION**

The purpose of Halifax Water is to provide and safeguard sustainable, high quality water services.

The vision statement for Halifax Water is:

- 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.

Each year, the organizational indicators are reviewed and refined based on operational objectives and approved budgets.

The organizational indicators have been aligned with the four strategic pillars approved in the 2025/26 Business Plan.

The following are proposed adjustments to the metrics in the 2025/26 CBS to reflect improvements to operational programs and processes, continuous improvement and alignment with the 2025/26 Business Plan. Adjustments have also been made to the targets identified in the Attachment B, reflecting continuous improvement and advancements of programs and initiatives.

**Changes proposed for 2025/26 Organizational Indicator Targets**

**Financial and Regulatory Accountability**

***Changing to "Percentage of total unspent budget available, spent in the current fiscal year***". The total unspent budget available represents the total of the budget remaining from prior years and the budget approved in the current fiscal year. As projects approved in prior years increase their spend, the percentage will increase. Also, as Halifax Water continues to refine its capital budget processes to ensure that funds are budgeted in the year the work will be completed, the percentage will increase. The measure recognizes that there will always be situations where despite our best efforts a project does not advance as planned.

**Environment, Health, Safety and Social Responsibility**

***Remove "Average score on internal safety audits"*** – the program to inform the metric is being updated and the process around conducting audits will be adjusted with new metrics developed in the future as the process matures.

***Changing the wording on the metric for "NS Labour and Advanced Education compliance – Number of Incidents with written compliance orders"*** *to* "***NS Labour and Advanced Education compliance – Number of Compliance Orders issued***". This is being done as there may be multiple compliance orders that result from an incident. Compliance orders can be issued from either an accident investigation or an inspection.

***Changes to Injury classification and metrics*:**

There are several changes that are being made to the definition of "***Lost Time Injury Frequency – Number of accidents resulting in lost time per 100 employees"*** and a new metric being added for "***Total Recordable Injury Frequency - Number of accidents resulting in lost time per 100 employees"*** to better align with industry standards for 2025/26. Definitions and changes are provided below.

> Lost Time Injury (LTI): Personal injury serious enough that results in the employee not being unable to perform their regular or modified duties, provided the inability is directly related to the injury and medically substantiated, and not due to logistical or other factors (i.e. time lost waiting to receive medical assessment).
>
> Modified Duties: The employee is not able to return to their normal duties, but is able to complete tasks as per their functional abilities, which they are meaningfully capable of carrying out with a medical practitioner's concurrence.
>
> Medical Aid: The employee requires medical treatment by a physician or other medical practitioner (i.e. chiropractor, nurse practitioner, physiotherapist, occupational therapist, paramedic), but they can return to their normal duties at the next scheduled watch or shift.

***Lost time Injury Frequency - Number of accidents resulting in lost time per 100 employees***

Number of LTIs x 200,000 / Hours Worked

***Total Recordable Injury Frequency - Number of accidents resulting in lost time per 100 employees***

(Number of LTIs+MDs+MAs) x 200,000 / Hours Worked

1) Addition of second, more comprehensive metric, "***Total Recordable Injury Frequency (TRIF)***", which besides LTIs, also factors in Modified Work and Medical Aid Cases. This metric is more indicative of an organization's safety performance as it is not solely focused on LTIs, but also includes less severe injuries. This is a standard industry best practice globally.

2) Changing the definition of an LTI to include cases where employees lost time due to a workplace injury, even though they may have been able to return to their normal duties on their next scheduled shift. There are cases where employees suffer workplace injuries that initially do not seem to be serious and the employees are able to continue work normally. However, symptoms may flare up days or even weeks later, eventually

causing an employee to not be able to return to their normal duties. Such cases should rightfully be classified as LTIs, but they are not under the current definition, which very narrowly defines an LTI as the employee not been able to return to work on their "next scheduled shift"

3) The definition of an LTI has been further clarified to indicate that:
   a) The inability to return to normal duties has to be "medically substantiated", i.e. based on an assessment by a physician or other medical practitioner, not solely on the employee's perception, which could be the case under the current definition, and
   b) If the time lost is due to factors not related to the injury per se (i.e. time lost waiting to be assessed at an emergency room), does not count as time lost due to the injury.

By adding a new category of injury, i.e. Modified Work, this category reflects cases where employees are not able to return to their normal duties, but are able to perform alternate work, within the limitations prescribed by a medical practitioner, and which Halifax Water can accommodate. This is in-line with our legislated duty to ensure injured persons return to work as early as safely possible. Also avoids escalation of certain cases to LTIs (which would misleadingly inflate our LTI frequency), when the severity of an injury is not necessarily high enough to justify the employee staying off work. For example, an employee may be limited only with regards to the weights they can lift, which still allows them to perform meaningful alternative work, instead of taking time off.

**Operational Excellence**

***Add the metric "Bacteriological tests - Percentage free from Total Coliform"*** *measurement to* ***"Adherence with objectives of Water Safety Plan for all water systems - Percentage of sites achieving targets"*** *creating* ***"Adherence with 6 objectives of Water Safety Plan for all water systems"***. The Water Safety Plan target will now have 6 instead of 5 objectives.

***Added "Number of times primary disinfection in water supply facility criteria not met".*** In response to the recent boil water advisories a metric has been added for the number of times primary disinfection criteria not met per year with a target of 0. This is based on the number of times our CT ratio for primary disinfection (requirement for CT ratio to be >1) is not met without explanation (i.e. analyzer equipment maintenance), based on a 5-minute interval period. With the proposed removal of "*Peak flow reduction from wet weather management capital projects*" (below), which was identified as an Org. Award metric, it is proposed to make the metric relating to primary disinfection, an Org. Award metric.

***Changing the "Percentage Average Speed calls answered within 20 seconds"*** to "***Percentage of call answered within 5 minutes".*** The current metric of calls answered in 20 seconds has been determined to be unreasonable and not attainable. The 2024 average wait time before a customer disconnected was 8.5 minutes. Customer Care has been working to reduce the customers' wait times though changes to staffing levels, increase customer utilization of the Customer Portal, and process improvements including additional training on reducing the average handling time per call. These approaches will all contribute to a reduction in the call wait time.

***Adjust the "Water leakage control – target leakage allowance of 165 litres/service connection/day"*** to ***"Percentage reduction in real loss over previous fiscal year".*** There has been an incremental increase in annual water loss over the past several years. Changing this goal to a percentage reduction better demonstrates that our annual water loss is trending in the right direction. It is also a more meaningful target for operators to try and achieve and demonstrates continuous improvement.

***Remove "Peak flow reduction from wet weather management capital projects***" metric as defined is inconsistent with measuring program activities and staff intend to revisit the metric to better measure program success.

**People**

***Replace "Number of arbitrations divided by total number of grievances"*** with "***Percentage of total grievances resolved within the year"***, this is a more accurate representation of the current state of labour relations.

***Remove "Percentage of jobs filled with internal candidates"***, efforts still focus on developing and promoting our internal employees however, this metric does not consider our workforce demographics and it sets unrealistic expectations with employees. The reality is, in order to achieve our strategic priorities, there is a desire to obtain external skills, experience and perspectives especially related to critical roles and skills.

***Add*** "***Leaders engage employees in meaningful career conversations to support employee development and succession planning initiatives through performance appraisals."*** This metric is linked to the overall employee experience, succession planning efforts and increasing leadership accountability.

***Remove "Average number of days absenteeism"***, since COVID and the implementation of the remote work policy, the metric of absenteeism is not an accurate reflection of missed time as some employees may still work from home if sick. Further it promotes employees coming to work when they are sick.

***Add "Percentage of employees to participate in monthly health and wellness moments"*** to support psychological and healthy workplace.

2024/25 CBS Summary to date:

The attached CBS summary identifies the organizational indicators for 2024/25 and a projection of the results for 2024/25. Final results will be available after completion of the 2024/25 fiscal year audit and will be reported to the Halifax Water Board at the June Board meeting.

Determining

Consistent with prior years and the methodology approved by the Halifax Water Board, the most objective organizational indicators have been considered for the Organizational Award program. Twelve organizational indicators are recommended for inclusion in the award program. The recognition of an organizational award hinges on a minimum score of 7.0 to give a passing grade out of a maximum score of 12.0. Funds for the award program are connected to the operating expense to revenue ratio being at/or below the target for the fiscal year. The operating expense to revenue ratio for 2025/26 has been adjusted to reflect the equivalent of $1.0 million in expense reduction. The $1.0 million reduction provides the funds required to pay the organizational award.

In keeping with cost containment efforts, water and wastewater service cost per connection measures, under responsible financial management, have targets to realize a 2% savings compared to the approved operations budget. In addition, under environmental stewardship, the utility is expected to reduce energy consumption (and therefore greenhouse gas emissions) as a result of capital improvements. The continuation of an organizational award tied to the outcomes of the CBS helps promote a high level of performance and will realize future savings for the utility.

The Board may consider reviewing the fiscal health of the utility in April 2026 in assessing the payment of the CBS Organizational Award.

## BUDGET IMPLICATIONS

Funds for the Organizational Award program are available if the operating expense to revenue ratio is at/or below the target amount. In many cases, meeting the organizational indicator targets will realize direct savings to the utility, improved operational effectiveness, and/or improved customer service.

## ALTERNATIVES

1. The Board not approve the goals contained within the CBS for 2025/26. This is not recommended as it would not provide for corporate metrics to guide employees for the coming fiscal year.
2. The Board not require an assessment of the fiscal health of the utility and follows established methodology for determining the amount of the Organizational Award.

## ATTACHMENT

Attachment A – 2024-2025 – Projected Corporate Balanced Scorecard Results
Attachment B – 2025-2026 – Proposed Corporate Balance Scorecard

Report Prepared By:

Signed by:
Kenda MacKenzie
0C084AC815794F6...

Kenda MacKenzie, P. Eng
General Manager/CEO
902-237-7116

Financial Approved By:

Signed by:
A65D6874EBC1407...

Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO
902-490-3685

Halifax Water

# Corporate Balance Scorecard - Projected Results 2024-2025

| Organizational Indicators | Organization Award | Results | TARGET | RESULTS (as of Feb 1) | Target (See Attachment B) |
|---|---|---|---|---|---|
| **Financial and Regulatory Accountability** | | | | | |
| Operating expense/revenue ratio percentage (excluding depreciation) | Gateway | 62.6% | 67.0% | 65.5% | |
| Annual cost per customer connection – Water (excluding depreciation) | | $500 | $500 | $445 | |
| Annual cost per customer connection – Wastewater (excluding depreciation) | | $662.00 | $697 | $580 | |
| Total capital spend in the fiscal year (in millions) | | $98.2 | $135 | $88.4 | |
| Capital budget expenditures - Percentage of budget spend by end of fiscal year | | 34.7% | 70-80% | Data Not Available | |
| **Health Safety & Environment** | | | | | |
| Average score on internal safety audits | | 96.1% | 90.0% | 97.2% | |
| NS Labour and Advanced Education compliance – Number of Incidents with written compliance orders | | 0 | < 2 | 2 | |
| Lost time accidents -Number of accidents resulting in lost time per 100 employees | Gateway | 2.38 | 2.5 | 2.03 | |
| Safe driving - Number of traffic Accidents per 1,000,000 km driven (maximum of 5) | Org. Award | 5.34 | 4 | 10.3 | |
| Training - Number of employees trained or re-certified before due date | | 86.0% | 85.0% | 90.0% | |
| Percentage of completed safety talks | | 88.0% | 85.0% | 90.0% | |
| Percentage of public health and environmental regulatory infractions resulting in a summary offense tickets | | 0% | 2% | 0% | |
| Percentage of WWTFs complying with NSE approval permits | Org. Award | 95% | 95% | 94.4% | |
| Number of ICI properties engagements by Pollution Prevention each year | | 272 | 250 | 244 | |
| **Operational Excellence** | | | | | |
| Adherence with objectives of Water Safety Plan for all water systems - Percentage of sites achieving targets | Org. Award | 86 | 80 | 100 | |
| Bacteriological tests - Percentage free from Total Coliform | | 99.88% | 99.90% | 99.96% | |
| Water service outages - Number of connection hours/1000 customers | | 183.05 | 200 | 93.08 | |
| Wastewater service outages – Number of connection hours/1000 customers | | 0.61 | 4 | 0.35 | |
| Average speed of answer – Percentage of calls answered within 20 seconds | | 35.3% | 70.0% | 11.7% | |
| Response time for service connection permits – percentage of formal responses provided from Halifax Water within 3 days or less | | 91.0% | 80.0% | 80.1% | |
| Response time for subdivisions involving system extensions – percentage of formal responses from Halifax Water provided within 4 weeks or less review | | 92.7% | 80.0% | 27.0% | |
| Water leakage control – target leakage allowance of 165 litres/service connection/day | Org. Award | 238 | 165 | 257 | |
| I&I reduction - Number of inspections to identify private property discharge of stormwater into the wastewater system | | 515 | 1200 | 801 | |
| Peak flow reduction from wet weather management capital projects | Org. Award | 1.7 l/sec* | 5-10 l/sec | Data Not Available | |
| Percentage of time GIS and Cityworks are available | Org. Award | 99.87% | 97.00% | 99.99% | |
| Energy management kwh/$m^3$ reduction associated with capital projects | Org. Award | 14.06% | 10.00% | 14.85% | |
| Bio-solids residual handling - percentage of sludge meeting bio-solids concentration targets | Org. Award | 99.6% | 95.0% | 99.9% | |
| **People** | | | | | |
| Customer satisfaction about water quality - Percentage from customer survey | Org. Award | 89.0% | 85.0% | 89.0% | |
| Customer satisfaction with service - Percentage from customer survey | Org. Award | 95.0% | 95.0% | 93.0% | |
| Number of arbitrations divided by total number of grievances | | 0.0 | 0 | 1.0 | |
| Percentage of jobs filled with internal candidates | | 60% | 80% | 63% | |
| Employee satisfaction survey result | | B | A | B+ | |
| Average number of days absenteeism | | 9.5 | <7 | 9.62 | |

**NOTES:**

* **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.

Halifax Water

**ITEM # 6 -**
**Attachment B**
**Halifax Water Board**
**March 27, 2025**

# Corporate Balance Scorecard - Projected Results 2025-2026

| Organizational Indicators | Organization Award | 2024/25 TARGET | 2025/26 Target |
|---|---|---|---|
| **Financial and Regulatory Accountability** | | | |
| Operating expense/revenue ratio percentage (excluding depreciation) | Gateway | 67.0% | 73.1% |
| Annual cost per customer connection – Water (excluding depreciation) | | $500 | $587 |
| Annual cost per customer connection – Wastewater (excluding depreciation) | | $697 | $740 |
| Total capital spend in the fiscal year (in millions) | | $135 | $135 |
| Capital budget expenditures - ~~Percentage of budget spend by end of fiscal year.~~ Percentage of total unspent budget available, spent in the current fiscal year. | | 60% | 45% |
| **Environment, Health, Safety and Social Responsibility** | | | |
| ~~Average score on internal safety audits~~ | | ~~90.0%~~ | - |
| NS Labour and Advanced Education compliance – Number of Compliance Orders issued | | < 2 | 2 |
| Lost time Injury Frequency -Number of accidents resulting in lost time per 100 employees | Gateway | 2.5 | 2 |
| Total Recordable Injury Frequency - Number of accidents resulting in lost time per 100 employees | | 3.5 | 3.5 |
| Safe driving - Number of traffic Accidents per 1,000,000 km driven (maximum of 5) | Org. Award | 4 | 4 |
| Training - Number of employees trained or re-certified before due date | | 85.0% | 85% |
| Percentage of completed safety talks | | 85.0% | 90% |
| Percentage of public health and environmental regulatory infractions resulting in a summary offense tickets | | 2% | 2% |
| Percentage of WWTFs complying with NSE approval permits | Org. Award | 95% | 95% |
| Number of ICI properties engaged by Pollution Prevention each year | | 250 | 250 |
| **Operational Excellence** | | | |
| Adherence with 6 objectives of Water Safety Plan for all water systems | Org. Award | 80 | 80 |
| ~~Bacteriological tests - Percentage free from Total Coliform~~ Number of times primary disinfection in water supply facility criteria not met per year | Org. Award | 0 | 0 |
| Water service outages - Number of connection hours/1000 customers | | 200 | 200 |
| Wastewater service outages – Number of connection hours/1000 customers | | 4 | 4 |
| Average speed of answer – Percentage of calls answered within ~~20 seconds~~ 5 minutes | | 90.0% | 90% |
| Response time for service connection permits – percentage of formal responses provided from Halifax Water within 3 days or less | | 80% | 80% |
| Response time for subdivisions involving system extensions – percentage of formal responses from Halifax Water provided within 4 weeks or less review | | 80% | 80% |
| Water Loss Control - Percentage reduction in real water loss over previous fiscal year | Org. Award | 165 | 5% |
| I&I reduction - Number of private properties engaged about Inflow & Infiltration | | 1200 | 1200 |
| ~~Peak flow reduction from wet weather management capital projects~~ | ~~Org. Award~~ | ~~5 10 l/sec*~~ | - |
| Percentage of time GIS and Cityworks are available | Org. Award | 97% | 97% |
| Energy management kwh/$m^3$ reduction associated with capital projects | Org. Award | 10.00% | 14% |
| Bio-solids residual handling - percentage of sludge meeting bio-solids concentration targets | Org. Award | 95.0% | 95% |
| **People** | | | |
| Customer satisfaction about water quality - Percentage from customer survey | Org. Award | 85% | 85% |
| Customer satisfaction with service - Percentage from customer survey | Org. Award | 95% | 95% |
| ~~Number of arbitrations divided by total number of grievances~~ Percentage of total grievances resolved within the year. | | 85% | 85% |
| ~~Percentage of jobs filled with internal candidates~~ Leaders to engage employees in career conversations to support employee development and succession planning initiatives through performance appraisals. | | 75% | 75% |
| Employee satisfaction survey result | | A | A |
| ~~Average number of days absenteeism~~ Percentage of employees to participate in monthly health and wellness moments. | | 90% | 90% |

**ITEM #7**
**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: Kenda MacKenzie 0C084AC815794F6...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 27, 2025

**SUBJECT:** **Fluoridation Recommendation Report**

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## ORIGIN

The Halifax Water Board of Commissioners workshop on Fluoridation in Drinking Water (January 7, 2025) and the Environment Health and Safety Committee meetings (November 27, 2024, and January 16, 2025) and Halifax Water Board of Commissioners meeting on January 30,2025.

## RECOMMENDATION

It is recommended that the Halifax Water Board directs Halifax Water to:

1. Continue Fluoridating at the JD Kline Water Supply Plant (JDKWSP) and Lake Major Water Supply Plants (LMWSP),
2. Proceed with Option 2, to reinstate Fluoride at Lake Major, at approximately $1M within two years.
3. Establish notification protocols for interruptions of fluoridation in consultation with the Medical Officer of Health and dental partners.
4. Write a letter to the Province of Nova Scotia requesting funding assistance for both capital and operating costs associated with fluoridation where it has been shown that community water fluoridation reduces costs to the health care system.

## BACKGROUND

Halifax Water provided an information report for the January 30th, 2025 Halifax Water Board of Commissioners Board meeting. This report provided a summary of fluoridation at Halifax Water including an overview of regulatory requirements, the recent interruptions in fluoridation at both the JDKWSP and LMWSP, as well as options for reinstatement at LMWSP. Attached to the report were both the 2014 Board Report on fluoridation as well as an information package provided by the Medical Officer of Health.

**DISCUSSION**

Fluoridation of drinking water supplies for dental health protection is not a regulatory requirement in Nova Scotia. According to Nova Scotia Environment and Climate Change, "The fluoridation of drinking water supplies is a decision that is made by each municipality, in collaboration with the Province. The decision may also be taken in consultation with residents. For communities wishing to fluoridate their water supply, the optimal concentration of fluoride in drinking water to promote dental health has been determined to be 0.7 mg/L. Health Canada has established the guideline for fluoride in drinking water as a maximum acceptable concentration (MAC) of 1.5 mg/L. Water containing fluoride at, or below, this MAC does not pose a risk to human health."

**Fluoridation Status**

Where fluoridation is not a regulatory requirement, Halifax Water seeks direction from the Board of Commissioners on fluoridation at both JDKWSP and LMWSP. On April 24, 2014, The Halifax Water Board of Commissioners endorsed the continuation of the practice of drinking water fluoridation, consistent with the Guidelines for Canadian Drinking Water Quality, and a position statement of the Nova Scotia Department of Health. As part of the Information Report package on January 27, 2025, the Medical Officer of Health, the IWK, and Dalhousie University all provided letters of support for the continued practice of community water fluoridation (Attachment). Halifax Water recommends continuing the practice of fluoridation at the two larger water treatment plants, JDKWSP and LMWSP.

**Fluoridation reinstatement at LMWSP**

After an interruption to fix leaks to the system, fluoridation resumed at JDKWSP in December 2024. Fluoridation at LMWSP has been interrupted since 2020 due to operational issues and asset renewal requirements. A project has been underway to reinstate fluoride but has been met with delays for several reasons including: evaluating options for changing the fluoridation product, COVID-19 restrictions, project governance and organizational restructuring. Most recently the project pivoted due to significant changes in source water quality that require more storage for treatment chemicals to ensure regulatory compliance. The space that was once designated for the fluoride tank is now allocated for an additional alum storage tank to meet operational resiliency and regulatory compliance needs. Halifax Water has identified three options for reinstating fluoridation at LMWSP that are listed below in Table 1. The cost and timeline estimates are preliminary and can be further defined through additional scoping.

**Table 3. Preliminary overview of options for reinstatement of Fluoride at the Lake Major WSP.**

| Options | | Comments | Timeline | Approximate Cost | Full Fluoride Redundancy | Alum Redundancy |
|---|---|---|---|---|---|---|
| **1** | Pivot ongoing alum tank installation back to fluoride | Ongoing alum tank installation would be reconfigured for fluoride. As a result, this option creates risk in terms of operational resiliency and compliance during adverse raw water quality conditions. | ~ 1 Year | < $500 K | Full system redundancy not possible | No |
| **2** | Retrofit existing chemical storage area for orthophosphate and move orthophosphate to different part of the facility | Existing room for corrosion control (orthophosphate) chemicals would be reconfigured for fluoride, with orthophosphate being moved to a different location in the building, or in an external structure. This option allows for proceeding with the ongoing extra alum tank installation, reducing risk for non-compliance. | ~ 2 Years | ~ $1 M | Full system redundancy not possible | Yes |
| **3** | Implement Fluoride as part of long-term upgrades | Fluoride would be incorporated into major long term capital upgrades at the facility through the Water Supply Enhancement Program. | >5-10 Years | ~ $500 K | Full system redundancy is an option | yes |

Both Options 1 and 2 allow for redundancy in chemical feed systems but no redundancy in chemical storage (tanks), due to space limitations. Redundant chemical feed systems enhance the level of service by being able to provide fluoridation when there are maintenance requirements on one of the feed systems. There is limited space at both facilities to be able to install redundant fluoride storage tanks and this can only be achieved by the longer-term Option 3 as the infrastructure to facilitate full redundancy would be programmed into the overall upgrades through the Water Supply Enhancement Project.

In balancing both operational resiliency and compliance requirements, with the public health benefit of fluoridation, Halifax Water recommends proceeding with Option 2, which is the higher cost but medium-term option that allows for both alum and fluoride storage and delivery systems.

**Notification**

Halifax Water has established a process to keep the Halifax Water Board of Commissioners notified of fluoridation status through routine reporting to the Environmental Health and Safety Subcommittee. It is also important to establish notification requirements to ensure that both customers and the medical and dental community are notified when there are changes to fluoridation status to allow for informed decision making at both consumer behaviour and medical/dental programming levels.

Halifax Water has been working with the Medical Officer of Health on establishing notification timelines. They recommend that Halifax Water notify the Medical Officer of Health anytime there is an interruption that would trigger a notification to Nova Scotia Environment and Climate Change. Furthermore, through input from both the Nova Scotia Dental Association and the CDHNS, the Medical Officer of Health recommends that an outage exceeding 90 days should trigger notifications to both customers and dental partners. This timeline provides balance between not needing to report every small outage but capturing medium to longer term interruptions to allow for informed decision making by customers and to adapt patient specific recommendations and treatment planning by the dental community knowing there is no fluoridation. These timelines are consistent with approaches in other jurisdictions, including Ontario. Safe Drinking Water and Flouride Monitoring Protocol - English. This document clearly outlines the Ontario Board of Health's responsibilities with respect to community water fluoridation, including monitoring, reporting, and notifications. This ensures consistent processes across the province.

**Funding**

Fluoridation is not a regulatory requirement in Nova Scotia. The Medical Officer of Health provided an information package on Fluoridation (Attachment A) on the benefits to community water fluoridation including the dental health benefits but also the cost savings that occurs due to reduced need for costly medical intervention. The presentation included in this package states that for every dollar spent on community water fluoridation, there is a public health savings of between $5.49 and $93.19. Currently, fluoridation is paid for through rates, where not all customers receive the benefit of fluoridation. Where the benefit is largely one for public health, Halifax Water recommends continuing discussions on the

benefits of Fluoride and writing a letter to the province to explore funding options for community water fluoridation.

**BUDGET IMPLICATIONS**

The cost of proceeding with Option 2 at LMWSP, which is the most operationally resilient option, is expected to be approximately $1 Million. This cost includes both moving the orthophosphate system as well as installing the fluoride system.

The operational cost for fluoridation is approximately $80,000 -$100,000 per year for JDKWSP and approximately $30,000-$36,000 per year for LMWSP. This translates to approximate costs of $0.30 - $0.40 per person annually.

**ALTERNATIVES**

**Fluoridation status:**
The alternative is to cease fluoridation at all facilities. This alternative would require decommissioning of the fluoridation at JDKWSP, which would incur cost. If this alternative is chosen none of the following alternatives would need to be considered. This is not the recommended approach given the guidance and letters provided by the Medical Officer of Health and the dental community.

**Fluoridation reinstatement at LMWSP:**
There are two alternatives to proceeding with Option 2:

The alternative to proceed with Option 1 has the shortest timeline but does not protect against operational resilience and future regulatory compliance risks and Halifax Water does not recommend this approach.

The alternative of proceeding with Option 3 has the longest timeline of 5-10 years and provides operational resilience. However, the timeline would significantly delay reinstating fluoridation and this is not the recommended approach.

**Notifications:**
No Alternative.

**Costs:**
Fluoridation of water supplies provides a public health benefit but is not a regulatory requirement. The alternative to writing a letter to the province to assist in funding fluoridation is to continue funding fluoridation activities through the rates.

**ATTACHMENTS**

1. Attachment A: Item 5-I - Information Report from January 30, 2025 - Drinking Water Fluoridation at Halifax Water

Report Prepared by: Signed by: Wendy Krkosek C70B2090701442F...

Wendy Krkosek, PhD., P.Eng., Director Environment Health & Safety
(902) 483-4432

**ITEM #5-I**
**Halifax Water Board**
**January 30, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: Wendy Krkosek C70B2696701442F...
Wendy Krkosek, P.Eng., Acting Director, Environment, Health & Safety

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F6...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** January 22, 2025

**SUBJECT:** **Drinking Water Fluoridation at Halifax Water**

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## ORIGIN

The Halifax Water Board of Commissioners workshop on Fluoridation in Drinking Water (January 7, 2025) and the Environment Health and Safety Committee meetings (November 27, 2024, and January 16, 2025).

## BACKGROUND

Like numerous other utilities across North America, fluoridation began in the 1950's at Halifax Water at the encouragement of the public health office. Halifax Water fluoridates water in the J.D. Kline Water Supply Plant (JDKWSP) and Lake Major Water Supply Plant (LMWSP). Fluoride is not added to any of Halifax Water's small systems.

In Nova Scotia, Fluoridation practice is regulated by Nova Scotia Environment and Climate Change (NSECC) through operating approvals and in keeping with the Guidelines for Canadian Drinking Water Quality published by Health Canada, which establishes the maximum acceptable concentration (MAC) in drinking water of 1.5 mg/L. Health Canada's recommended minimum concentration of fluoride in drinking water to provide optimal dental health benefits is 0.7 mg/L. The addition of fluoride is not a regulatory requirement, or mandatory, only the MAC of 1.5 mg/L is regulated by NSECC, meaning that drinking water providers can choose to fluoridate at levels up to 1.5 mg/L.

Halifax Water fluoridates based on recommendations from the Board of Commissioners as well as the Medical Office of Health (MOH). In 2014, the Halifax Water Board of Commissioners endorsed the addition of Fluoride for the LMWSP and JDKWSP (Attachment 1). This decision included support from the IWK, the Nova Scotia Dental Association and the Dalhousie University Faculty of Dentistry. Halifax Water fluoridates at the optimal concentration for dental health benefits (0.7 mg/L).

Fluoridation was paused temporarily at the JDKWSP in 2021 and again in 2023, and at the LMWSP in 2020. This was based on operational decisions due to independent equipment and maintenance issues on non-redundant systems at both water supply plants that had to be repaired or replaced. Halifax Water communicated all changes to fluoridation along with explanations, to NSECC as per requirements in the Approval to Operate as is done with any other change to the treatment process. Generally, NSECC directly engages public health on issues reported that may impact public health. In October 2024, through discussions with the Medical Officer of Health (MOH), it became apparent that public health representatives were unaware of reported changes to fluoridation at the JDKWSP and LMWSP. Halifax Water immediately engaged in fluoridation discussions with the MOH team and the Board of Commissioners. Fluoridation was resumed at the JDKWSP in December 2024 once repairs were complete and the system was recommissioned, and staff were properly trained in its use and handing. Fluoridation at the LMWSP is still interrupted due to the complexity of reinstatement.
The goal of this information report is to provide the Halifax Water Board of Commissioners with:

- An understanding of the regulatory context around fluoridation
- An update on fluoridation status at the JDKWSP and the LMWSP, including timelines on recent changes at each facility.
- Options for potential fluoride reinstatement, and
- Information to guide decisions on fluoride reinstatement.

## DISCUSSION

### Regulatory Context

According to Health Canada and other public health agencies, water fluoridation can reduce tooth decay in a community by providing frequent and consistent contact with low levels of fluoride. In 2010 Health Canada completed its review of the health risks associated with fluoride in drinking water. This review assessed all identified human health risks, considering new studies and approaches. Based on this review, Health Canada's Federal-Provincial-Territorial Committee on Drinking Water has established the guideline for fluoride in drinking water as a Maximum Acceptable Concentration (MAC) of 1.5 mg/L.

Although the MAC for fluoride in drinking water is 1.5 mg/L, the optimal concentration of fluoride in drinking water for dental health has been determined by Health Canada to be 0.7 mg/L for communities who wish to fluoridate, which is well below the MAC. This recommended optimal level of fluoride in drinking water takes into consideration all sources of exposure to fluoride, including foods and dental products. This concentration is Halifax Water's treatment objective when fluoridating water supplies.

Health Canada routinely reviews existing guidelines and develops new guidelines where appropriate for chemical and physical properties of drinking water. Health Canada is currently reviewing the Guidelines for Canadian Drinking Water Quality for fluoride.

Halifax Water is regulated by NSECC who require that the microbiological, physical, and chemical characteristics of a public drinking water supply do not exceed the MAC for substances listed in the most

recent version of Health Canada's Guidelines for Canadian Drinking Water Quality, as amended from time to time. The addition of fluoride is not a regulatory requirement, or mandatory in Nova Scotia. Fluoridation in Nova Scotia is regulated by NSECC through operating approvals for the MAC listed in the Guidelines for Canadian Drinking Water Quality published by Health Canada.

As described by NSECC: "*the fluoridation of drinking water supplies is a decision that is made by each municipality, in collaboration with the province. The decision may also be taken in consultation with residents. For communities wishing to fluoridate their water supply, the optimal concentration of fluoride in drinking water to promote dental health has been determined to be 0.7 mg/L. Health Canada has established the guideline for fluoride in drinking water as a MAC of 1.5 mg/L. Water containing fluoride at, or below, this MAC does not pose a risk to human health.*" (NSECC, n.d.)

Per NSECC Guidelines for Monitoring Public Drinking Water Supplies (Section 6.1 General Chemical and Physical Water Quality Parameters), the owner shall monitor for general chemical and physical water quality, for chemical and physical parameters with recommended limits in the Guidelines for Canadian Drinking Water Quality, including fluoride, with an MAC of 1.5 mg/L. The Guidelines also state that if a municipal water utility fluoridates their water, the owner shall monitor daily for fluoride concentrations at a location where the water enters the distribution system. An owner shall record fluoride measurements daily in a uniform manner and make the results available to NSECC upon request. Only measurements that exceed the MAC would trigger notification to NSECC, but Daily fluoride readings when fluoridating are included in Halifax Water's annual report to NSECC.

### Fluoridation at Halifax Water

Like numerous other utilities across North America, fluoridation began in the 1950's at Halifax Water at the encouragement of the public health office. Halifax Water fluoridates water in the JDKWSP (Pockwock) and LMWSP systems (Figure 1). Fluoride is not added to any of the small systems including Bennery Lake, Five Islands, Silver Sands, Middle Musquodoboit, and Bomont water supply plants. There are times when some small systems obtain trucked water from either JDKWP or LMWSP in which case they would have a fluoridated water supply at those times.

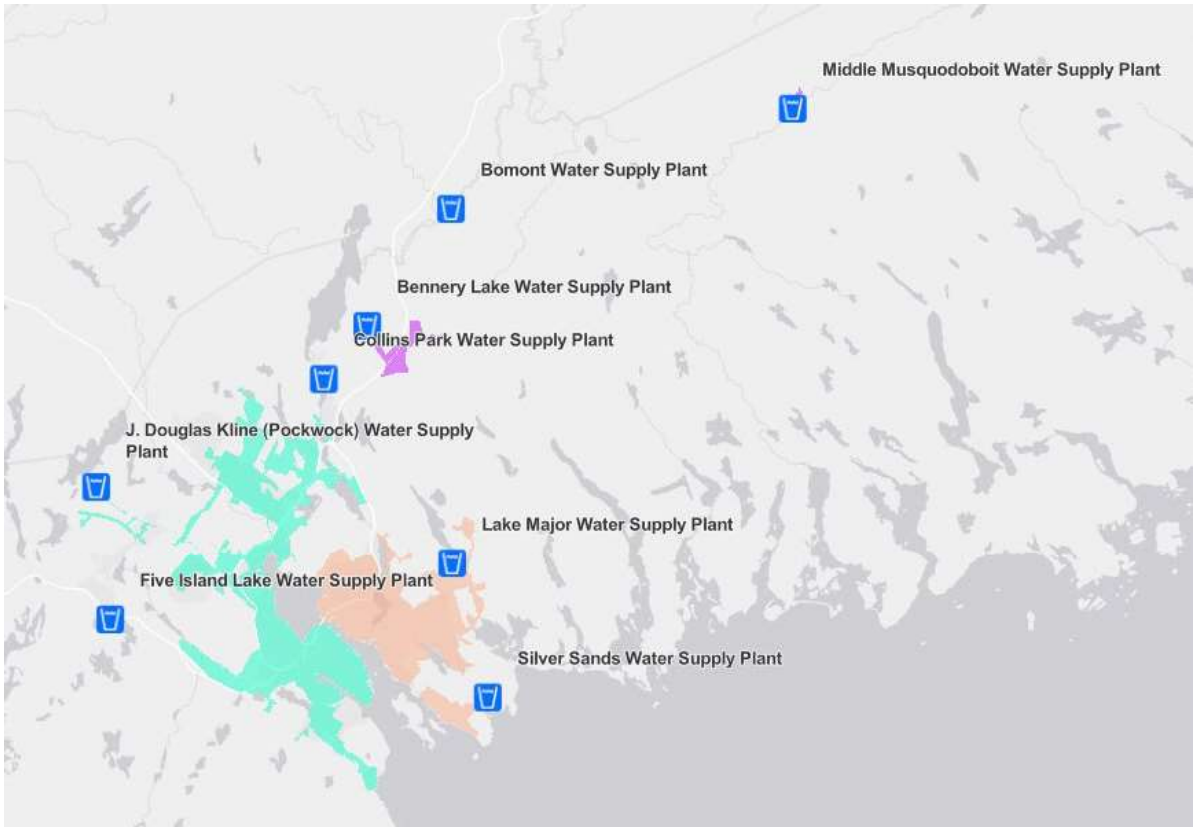



**Figure 1. Map of Halifax Water's Water Supply Plants. Areas shaded green and orange represent areas serviced by the JDKWSP and LMWSP, respectively, which are the facilities that have fluoridation.**

The fluoridation product Halifax Water uses, hydrofluorosilicic acid (HFS), in the drinking water system must meet the American Water Works Association standards, and National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) Standard 60, which is a standard for additives to drinking water.

The addition of fluoride is not a requirement in Halifax Water Approvals to Operate, However, Halifax Water reports all changes in drinking water treatment, including fluoridation, to the NSECC when they occur, as required by its Approval to Operate permit. As fluoridation is not a regulatory requirement, Halifax Water does not have redundant fluoridation systems within the facilities, so when there is a maintenance or operational issue, the system must be shut down until the issue can be resolved, and the system recommissioned.

The decision to add fluoride at the JDKWSP and LMWSP was most recently revisited in 2014. At that time, the Halifax Water Board of Commissioners endorsed fluoridation based on support from the IWK, the Nova Scotia Dental Association, and the Dalhousie University Faculty of Dentistry. Most recently, fluoridation was interrupted from Summer 2021 until Summer 2022 and again from Spring 2023 until late fall 2024 at the JDKWSP, and since Spring 2020 at the LMWSP. These interruptions were based on

operational decisions due to independent equipment issues and maintenance issues on non-redundant systems at both water supply plants that had to be repaired or replaced.

Halifax Water communicated all changes to fluoridation along with explanations, to NSECC as per requirements in the Approval to Operate as we do with any other change to the treatment process. Halifax Water looks to agencies like NSECC and the MOH for direction on public notifications regarding water quality. Halifax Water communicates water quality issues and changes to treatment to NSECC. Generally, NSECC then engages with the MOH on changes or issues with water quality that may have a public health impact, either through an Environmental Health Consultant within ECC or directly. In October 2024, through discussions with the MOH, it became apparent that public health representatives were unaware of reported changes to fluoridation at the JDKWSP and LMWSP. Halifax Water and the MOH team immediately started conversations on this issue and are working to strengthen and clearly define communication pathways moving forward.

### *Fluoridation at the JDKWSP*

Since August 2021, the fluoridation system at the JDKWSP has experienced intermittent leaks. Without proper safety precautions, fluoride can be dangerous to store and use, and with a lack of redundancy in fluoridation systems, the system is taken offline for repairs when needed, which can take days to months or even years depending on the scale of the issue. Most recently, leaks led to the system being taken offline in May 2023 for repairs. Additional leaks were found in September 2024, which delayed the process of resuming fluoridation. All leaks were fixed, the system was recommissioned, and Halifax Water resumed fluoridation at the JDKWSP as of December 12th, 2024. Table 1 below provides a summary of fluoridation timelines at the JDKWSP.

**Table 1. Timeline of changes to fluoridation at the JDKWSP.**

| Date | Action | Description |
|---|---|---|
| **August 2021** | Fluoridation paused until further notice | • Upgrades to the fluoride storage tank as well as an equipment failure required Halifax Water to stop fluoridation until the issue was resolved.<br>• This information was communicated to NSECC via email. |
| **August 2021 to July 2022** | Fluoride offline | |
| **July 2022** | Fluoridation resumed | • Fluoride addition resumed and changes were communicated to NSECC via email. |
| **July 2022 to May 2023** | Fluoride online | |
| **May 2023** | Fluoridation paused until further notice | • A leak occurred in the fluoride system. Fluoridation was once again paused until an investigation was completed of the fluoride system. This was communicated to NSECC via email. |
| **September 2024** | Fluoride remains offline | • Additional leaks were identified by Halifax Water staff, delaying the process of resuming fluoridation at the JDKWSP. |
| **September to December 2024** | Fluoride remains offline | • Work continues to repair leaks, verify equipment is operational through testing, and staff training. |
| **December 2024** | Fluoride online | |

### *Fluoridation at the LMWSP*

The interruption of fluoridation at Lake Major was an operational decision to address aging infrastructure and safety of the delivery system. In 2019, through asset renewal, the existing aluminum sulfate (alum) and fluoride chemical storage tanks at the LMWSP were slated for replacement since they were originally installed when the plant was constructed in 1998. Through this chemical storage upgrade project, a third alum tank was also requested to be added within the containment area in the space provided. At the time, the basis for an additional alum tank was primarily a function of plant capacity requirements, changes in water quality and subsequent alum consumption (Figure 2), combined with shipper/supplier arrangements. The 3rd alum tank would allow for larger bulk deliveries and reduce overall unit cost of chemical supply. Later that year, a tank inspection revealed nearly 30 years of remaining life on the tanks but noted stress on a flange on the fluoride tank. Therefore, it was decided to not proceed with tank replacement, and to only install the third alum tank adjacent to the existing tanks. During this period fluoridation was online.

In 2020, Halifax Water decided to revisit replacing the fluoride tank since an investigation on this tank showed that the stressed flange had cracked. As a result, fluoridation was paused at the LMWSP. As part of the fluoride tank replacement, Halifax Water reviewed alternative chemical options for providing fluoridation. The study indicated that hydrofluorosilicic acid (HFS), the chemical used since Lake Major was commissioned, was most suitable based on operational, health and safety, and capital cost considerations. The existing fluoride tank was decommissioned in December 2020.

The design of the replacement fluoride tank progressed from 2020 through to 2023. During this time there were project delays resulting from COVID restrictions and changes in project management where the fluoride tank replacement project was merged with other projects that required similar engineering work in order to reduce contracting and procurement efforts and costs. Before the design could be completed, record-setting rainfall events caused significant changes in lake water quality during Summer 2023. These changes resulted in nearly doubling the alum dose compared to 2022 levels (Figure 2) to provide sufficient treatment to meet treatment requirements and compliance obligations. This put a strain on the storage capacity of alum at the LMWSP which poses a significant risk to the treatment process. During that period, alum was being delivered every 2.5 days. This provides very little buffer room in the event of further water quality changes or supply chain disruptions.

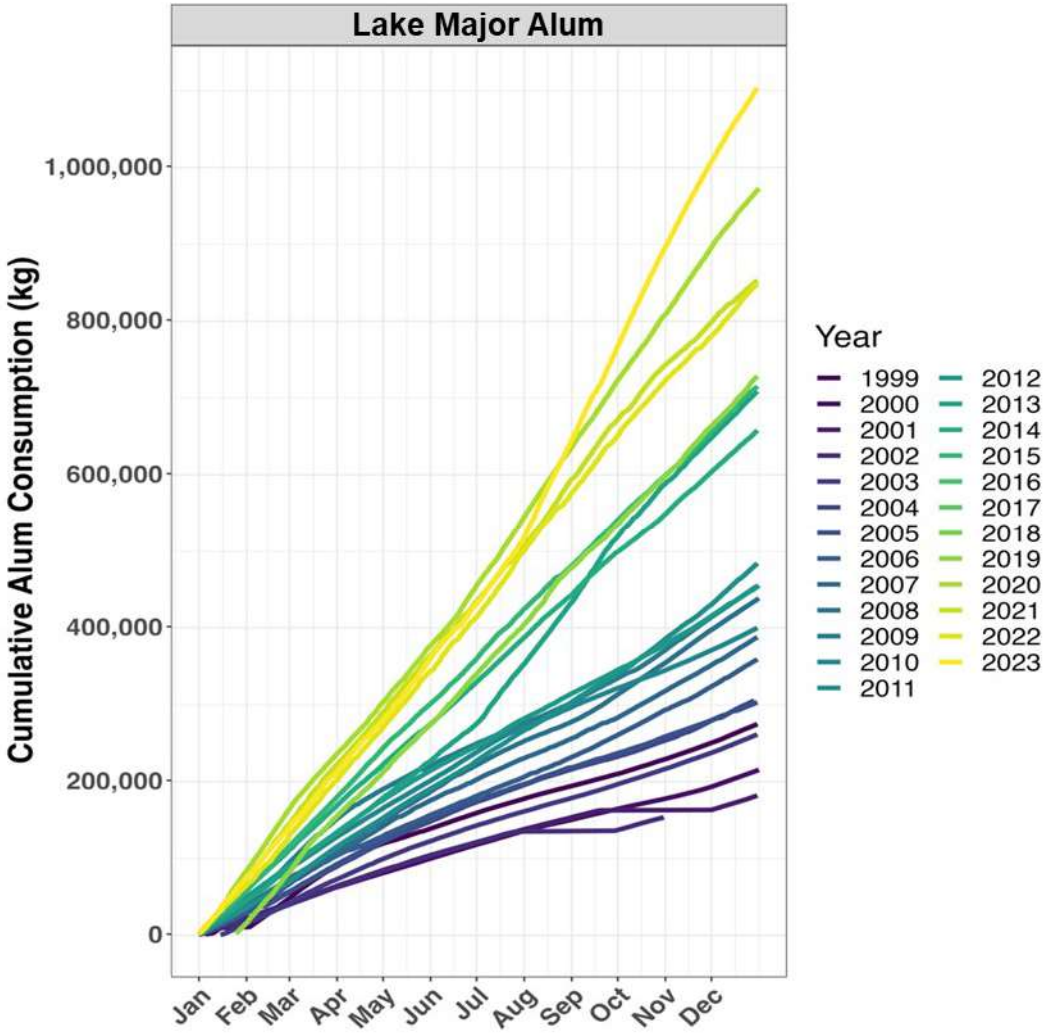



**Figure 2. Historical cumulative alum consumption at the LMWSP.**

At the time, the need for additional alum storage at the Lake Major facility was deemed a priority due to operational risk of non-compliance of finished water quality, and therefore the project to replace the fluoride tank was repurposed to add a fourth alum tank to ensure operational resilience. There is no room for a fourth tank adjacent to the three existing tanks. This means that the fourth alum tank would take the space allocated for the fluoride tank. This project has gone through the design phase, but the tank has not yet been installed.

As a result, there is now a space constraint at the supply plant as additional room is needed to accommodate more chemical storage tanks to ensure an uninterrupted supply of the alum required in the treatment process, in addition to the replacement fluoride tank and associated equipment. All four alum and the replacement fluoride tanks cannot be added within the existing footprint for chemical storage

due to space limitations at this facility, and the need for fluoride to be isolated from other chemicals. Table 2 below provides a summary of fluoridation timelines at the LMWSP.

**Table 2. Timeline of changes to fluoridation at the LMWSP.**

| Date | Action | Description |
|---|---|---|
| **2019** | Fluoridation online | • Alum (2x) and fluoride (1x) tanks at Lake Major are vintage to facility, project initiated to investigate replacement requirements.<br>• Water quality changes also require addition of a third alum tank<br>• Existing tanks are inspected; 26 years remaining on alum tanks and 30 years on fluoride tank, however flange on fluoride tank shows stress. |
| **February 2020** | Fluoridation online | • Investigation determined flange on fluoride tank was cracked and integrity was jeopardized, Halifax Water decides to revisit fluoride tank replacement. |
| **April to June 2020** | Fluoridation paused until further notice | • Roof leak at facility caused some equipment damage and fluoride was turned off. Halifax Water makes operational decision to keep fluoride offline until tank is replaced. This information was communicated to NSECC via email. |
| **June to December 2020** | Fluoride remains offline | • Halifax water begins engineering work with consultant to decommission and remove fluoride tank and investigates other fluoridation chemicals that may have less occupational health and safety concerns, including sodium fluoride (NaF).<br>• Halifax Water decides to continue with HFS instead if switching to NaF due to high capital cost and increased labour.<br>• Halifax Water proceeds with engineering work for design of fluoride tank replacement.<br>• Existing fluoride tank and associated equipment decommissioned. |

| Date | Action | Description |
|---|---|---|
| **2021** | Fluoride remains offline | • 90% drawings for fluoride tank replacement submitted for review.<br>• COVID-19 restrictions in NS cause work suspensions and delay progress.<br>• Fluoride tank replacement project merged with dedicated service water pumping project due to similar work (piping, valves, instrumentation) to reduce efforts for procurement and contracting. |
| **2022** | Fluoride remains offline | • Detailed design for fluoride tank replacement and dedicated service water project completed and prepared for tender. |
| **2023** | Fluoride remains offline | • Heavy rainfall and flood events cause significant changes to source water quality in Lake Major. Alum dosing nearly doubled to maintain finished water compliance and operational resilience. This put a strain on the storage capacity of alum.<br>• Project direction changes from replacing fluoride tank to adding a 4$^{th}$ alum tank due to lake water quality changes and need for additional alum capacity to manage operational risk. Alum tank was deemed a priority over fluoride since alum was required to meet finished water regulatory requirements.<br>• NSECC notified of this decision. |
| **2024** | Fluoride remains offline | • Raw water quality returns to normal in Summer.<br>• Service water and alum tank upgrade project tendered, contract signed.<br>• Halifax Water staff begin discussions with Nova Scotia Medical Office of Health on fluoridation status.<br>• Staff discuss options to resume fluoridation. |

### Options for Reinstating Fluoridation at Lake Major

Halifax Water is assessing the options for reinstating fluoride while minimizing operational risk. Based on a preliminary analysis, there are three options with varying timelines, cost, and redundancy that have been identified for potential fluoride reinstatement as described below. Additional options may be determined as Halifax Water continues to discuss fluoride reinstatement in more detail. A summary of the options based on preliminary analysis is provided in Table 3 below. It should be noted that an in-depth engineering analysis on Option 2 is the next step to provide more accurate information on cost and timelines. The column on fluoride redundancy provides an assessment of whether it would be possible to include redundant fluoridation systems that would reduce the likelihood of fluoridation interruption in the future.

**Table 3. Preliminary overview of options for reinstatement of Fluoride at the Lake Major WSP.**

| Options | | Comments | Timeline | Approximate Cost | Fluoride Redundancy | Alum Redundancy |
|---|---|---|---|---|---|---|
| **1** | Pivot ongoing alum tank installation | Ongoing alum tank installation would be reconfigured for fluoride. As a result, this option creates risk in terms of operational resiliency and compliance during adverse raw water quality conditions. | ~ 1 Year | < $500 K | No | No |
| **2** | Retrofit existing chemical storage area for orthophosphate and move orthophosphate to different part of the facility | Existing room for corrosion control (orthophosphate) chemicals would be reconfigured for fluoride, with orthophosphate being moved to a different location in the building, or in an external structure. This option allows for proceeding with the ongoing extra alum tank installation, reducing risk for non-compliance. | ~ 2 Years | ~ $1 M for fluoride retrofit, in addition to cost of extra alum tank from Option 1 | Yes | Yes |
| **3** | Implement Fluoride as part of long-term upgrades | Fluoride would be incorporated into major long term capital upgrades at the facility through the Water Supply Enhancement Program. | >5-10 Years | ~ $500 K | Yes | Yes |

### *Option 1: Pivot ongoing alum tank installation*

As described previously, Halifax Water has continued to plan for replacement of the fluoride tank. Significant changes to water quality in Summer 2023 resulted in the need for additional alum storage at the LMWSP and was deemed a priority since these impacts regulatory compliance and operational resiliency. Therefore, the project to replace the fluoride tank was repurposed to add a fourth alum tank. This project has gone through the design phase, but the tank has not yet been installed.

There is a space constraint as additional room is needed to accommodate more chemical storage tanks to ensure an uninterrupted supply of the alum required in the treatment process, as well as to reinstate fluoridation. The fourth alum tank and the replacement fluoride tank cannot be added within the existing footprint in this location of the facility due to space limitations and the need for fluoride to be isolated from other chemicals.

The installation of the fourth alum tank could be pivoted, and a replacement fluoride tank could be installed in its place (the location of the original fluoride tank that was previously decommissioned). However, this option would remove the ability to have more alum storage onsite and would increase risk for non-compliance in the event there are future water quality changes such as those experienced during Summer 2023. During that period, alum was being delivered every 2.5 days. This provides very little buffer room in the event of weather events or supply chain disruptions.

This is not the preferred option from an Enterprise Risk Management (ERM) perspective due to operational resilience and compliance risks. Further, this option does not provide any redundancy in the ability to add fluoride, and therefore fluoridation would likely be paused in the future if there were any maintenance requirements or repairs, which could range in time from weeks to years depending on the complexity.

The timeline to implementation for this option is approximately 1-year, and detailed design is complete. The cost to implementation would be <$500 K.

### *Option 2: Retrofit existing orthophosphate chemical storage area*

Another option to implement fluoridation at the Lake Major WSP would be to move some of the existing chemical storage to make a designated space for fluoride infrastructure. Due to the hazardous nature of the fluoridation product (HFS), it should be stored in a designated area with adequate containment and ventilation. Fluoride is usually stored in its own room so that plant staff do not have more exposure to HFS than necessary.

Currently, the room where the corrosion control inhibitor, orthophosphate, is stored at the LMWSP is larger than necessary for the existing infrastructure. Discussions with a consultant identified that the orthophosphate tank and associated equipment could be moved to a different location in the existing building, and the orthophosphate room could be reconfigured for fluoride. This option would also allow for redundancy in the fluoride equipment if level of service is deemed to require redundancy, which would provide more resiliency toward continuously fluoridating in the future. With some minor modifications, the orthophosphate could be moved to the generator room, or it could be stored in an external structure.

Due to the nature of the chemicals, storing orthophosphate exterior to the main building would be less of a risk than storing fluoride externally.

This option would also allow Halifax Water to continue to proceed with the installation of the new alum tank described in Option 1, which would provide operational resilience and reduce risk of non-compliance during challenging raw water quality events. This is a preferred option from an ERM perspective to mitigate operational/resilience and compliance risks.

Based on preliminary discussions with a consultant, the timeline to implementation for this option is approximately 2 years. This option includes the ability to have redundancy for both fluoride and alum. The cost to implementation is estimated at approximately $1M for the fluoride system installation and moving the orthophosphate system. An in-depth engineering analysis on Option 2 is the next step to provide more accurate information on cost and timelines.

### *Option 3: Implement Fluoride as part of long-term upgrades*

A third option for the reinstatement of fluoride at the LMWSP would be through inclusion of the system into larger upgrades at the facility through the Water Supply Enhancement Program. These upgrades are planned through a much larger long term capital project that would see significant updates to the intake and the entire treatment process. These upgrades are expected to occur over the next decade or more, and upgrades to the fluoride equipment as well as implementing redundancy in the fluoride infrastructure could be tied into this large capital project.

The timeline to implementation for this option is approximately 5 to 10-years more. The cost to implementation is estimated at approximately $500 K which would be tied to the larger capital project.

It should be noted that if option 2 were selected and the larger capital upgrades changed the configuration of the plant and chemical storage and delivery systems, the fluoride system may need to be moved to a new location at that time at an additional cost.

## Considerations and Future Direction for Fluoridation

Fluoridation was last revisited by the Board of Commissioners in 2014, and a motion was passed to endorse the continuation of the practice of drinking water fluoridation. When fluoridation was endorsed in 2014, there was no establishment of levels of service and notification requirements, and since then Halifax Water continued to follow past practice, making operational decisions to interrupt fluoridation for maintenance and asset renewal purposed. All changes to fluoridation have been communicated to NSECC. Given that fluoridation was discussed over a decade ago at the Board level, Halifax Water is proposing to revisit the Board's endorsement on whether to fluoridate or not and will be presenting a Recommendation report at the March 2025 meeting. Table 4 below outlines some considerations to guide the decisions on fluoride reinstatement. If endorsement of fluoridation continues, both level of service and notification requirements will need to be clearly delineated.

**Table 4. Considerations for continued fluoridation at Halifax Water.**

| Consideration | Comments |
|---|---|
| Fluoridation is not a regulatory requirement and is not mandated in Nova Scotia. | • Drinking water providers fluoridate based on recommendation and encouragement from public health professionals and municipalities.<br>• Halifax Water customers currently pay for drinking water fluoridation, but not all customers receive fluoride.<br>• If fluoridation were mandated, discussions on funding are necessary. |
| There are public health benefits to community water Fluoridation. | • Refer to information report prepared by MOH (Attachment 2). |
| Drinking water fluoridation is a cost-effective and equitable way to deliver fluoride to communities. | • The operational cost for fluoridation is $0.30 to $0.40 per Halifax Water customer annually plus any capital costs for maintenance and asset renewal.<br>• Per capita annual benefit of water fluoridation ranges from $5.49 to $93.193 per dollar invested. Refer to information report prepared by MOH (Attachment 2). |
| There has been a recent shift in some communities away from Fluoridation. | • USEPA court case and recent events in the US have resulted in some communities ceasing fluoridation.<br>• Montreal fluoridated since the 1950's but ceased fluoridation in 2024 after receiving a citizen petition that began in 2020.<br>• New Glasgow fluoridated since the 1970's and announced that it would stop adding fluoride in 2024.<br>• Studies indicate that fluoride cessation has had a negative impact on children's dental health (refer to information report prepared by MOH attached). |
| There is a split in community perceptions on Fluoridation. | • Until 2024, most Halifax Water customer tickets were inquiries about ceasing fluoridation. |

| | |
|---|---|
| | • In 2024, Halifax Water received 40 customer tickets on fluoridation, compared to <5 tickets in the previous 4 years. Since November 2024 there has been a split in opinion. |
| Historically Halifax Water only fluoridated the two large water supplies (JDKWSP and LMWSP). | • The cost of fluoridation is spread across all Halifax Water customers, but not all customers receive fluoridated water.<br>• Capital cost to implement Fluoridation in all other Halifax Water systems would be significant and imposes operational challenges for smaller systems. |
| Depending on the level of service required for Fluoridation, redundancy in Fluoridation systems may be required. | • When there are issues with the fluoridation system it is shut down until repairs can be made. This can range from days to months and even years depending on the scale of the issue.<br>• If it is determined that the level of service is that there are no interruptions in fluoridation, implementing redundancy in fluoridation would be required which would add costs to fluoridation systems. |
| Capital costs required to reinstate Fluoride at the LMWSP may require application to the UARB. | • Based on a preliminary assessment, some options for fluoride reinstatement at the LMWSP (described below) are over $1M and would require UARB approval.<br>• The UARB process can take months and could impact the timing of reinstatement. |
| The liquid chemical used at Halifax Water for fluoridation is hazardous and poses occupational health and safety risks. | • HFS is a hazardous product that can release toxic gases and is highly corrosive, with acute health impacts. There are frequent leaks in fluoride storage and delivery equipment due to the corrosive nature of HFS, causing interruptions in fluoridation.<br>• Large volumes are stored onsite at the facilities due to the low fluoride concentration in liquid form.<br>• Due to the risk of using HFS, Halifax Water previously did an assessment of alternative fluoridation chemicals. Halifax Water decided to continue with HFS instead if switching to NAF due to high capital cost and increased labor requirements for operations. |

**ATTACHMENT**

**Attachment 1 – 2014 Board Report**

Attachment 2 Fluoridation Information Package provided by the Medical Officer of Health

Halifax Water
Halifax Regional Water Commission

**ITEM # 3A**
**HRWC Board**
**April 24, 2014**

**TO:** Colleen Purcell, CA, Chair, and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Reid Campbell, P. Eng., Director of Water Services

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

**DATE:** April 17, 2014

**SUBJECT:** **Fluoridation of Drinking Water**

## ORIGIN

Information report to the Halifax Water Board, dated March 27, 2014, on drinking water fluoridation practice.

## RECOMMENDATION

It is recommended that the Halifax Water Board endorse the continuation of the practice of drinking water fluoridation, consistent with the above referenced submission to the Halifax Water Board, the Guidelines for Canadian Drinking Water Quality, and the position statement of the Nova Scotia Department of Health.

## BACKGROUND

The issue of fluoridation of drinking water is one that is of concern to a segment of Halifax Water's customers and, therefore, generates a number of customer inquiries. Common customer concerns presented to Halifax Water relate to freedom of choice, safety and perceived lack of benefits of water fluoridation. There are also several well organized anti-fluoridation groups, all of which can cite authorities who are speaking out against fluoridation of drinking water. Conversely, public health authorities are unanimous in support of fluoridation of drinking water, as was indicated by the recent submission from the IWK, Dalhousie Faculty of Dentistry and the Nova Scotia Dental Association to the Halifax Water Board (Attachment 1).

In recent years, there has been an increase in fluoride inquiries in response to a number of municipal level drinking water fluoridation debates across the country and local publications and petitions by anti-

fluoridation supporters. To provide a context for these complaints, approximately 260 customer water quality complaints were recorded in 2013. Of the 260 complaints, 130 were related to geosmin, 50 were related to lead and 27 were attributed to fluoride.

Considering the level of concern among a segment of Halifax Water customers, the interest by public health authorities in continuing this practice, and public debates in other communities, it is appropriate that the Halifax Water Board consider its position on fluoridation at this time.

## DISCUSSION

The addition of fluoride to drinking water has been found, by Health Canada, The Centers for Disease Control, the World Health Organization and other public health agencies, to be both a safe and effective public health measure. There is a scientific consensus in support of the addition of fluoride to drinking water for preventing tooth decay. Drinking water fluoridation is widely viewed as the most cost effective and equitable way to provide fluoride protection to a large number of people, despite the availability of other forms of fluoride such as toothpaste, mouth rinses, or professional fluoride treatment. The benefits of water fluoridation are available to everyone in the community and ensure access among vulnerable populations, such as those with limited socioeconomic resources who may not otherwise have access to preventive measures.

Halifax Water fluoridates water in the Pockwock (Halifax, Bedford, Sackville, Timberlea) and Lake Major (Dartmouth, Cole Harbour, Eastern Passage, North Preston) systems. Like numerous other utilities across North America, fluoride addition began in these systems in the 1950's at the encouragement of the Public Health Officer for the public health benefit of preventing and reducing dental caries. Halifax Water continues to practice drinking water fluoridation with full support from the Medical Officer of Health and Nova Scotia Environment.

Fluoridation of drinking water generates safety concerns by utility customers across North America. Halifax Water relies on the Guidelines for Canadian Drinking Water Quality (GCDWQ) as the authority to determine what is or is not safe for drinking water. Fluoridation practice is regulated by Nova Scotia Environment through operating approvals and the GCDWQ, published by Health Canada. Guideline development is supported by a diverse staff of public health professionals consisting of medical doctors, dentists and experts in epidemiology and toxicology. Health Canada considers all possible means of exposure (not just through drinking water) and after a public comment period, sets a limit for safe exposure through drinking water. This is a non-biased process that attempts to reach a decision while considering all available scientific evidence.

Health Canada, along with several other national public health agencies, has recently reviewed the issue of fluoride in drinking water and continues to support drinking water fluoridation as a safe and cost effective public health measure. The most recent guideline on fluoride reaffirmed a maximum acceptable concentration (MAC) of 1.5 mg/L and clearly states that the weight of evidence from all currently available studies does not support a link between exposure to fluoride in drinking water at 1.5 mg/L and any adverse health effects. In addition, the recommended concentration of fluoride in

drinking water to provide optimal dental health benefits was determined to be 0.7 mg/L, which is Halifax Water's treatment objective.

Halifax Water uses hydrofluosilicic acid, for drinking water fluoridation as part of the treatment process. The addition of fluoride costs approximately $150,000 annually, which is $0.42/person or $1.80/service connection. The fluoride we use in the drinking water system must meet American Water Works Association standards and more importantly National Sanitation Foundation (NSF)/ American National Standards Institute (ANSI) Standard 60, which is a health standard for additives to drinking water. The standard requires a toxicology review to determine that the product is safe at its maximum use level. Fluoride addition during the water treatment process is monitored carefully by water treatment plant operators, including daily quality control protocols to verify that the desired dose is being maintained.

Halifax Water responds to all water quality inquiries, including fluoride inquiries, received from concerned customers. All written inquiries are responded to in writing (a typical response letter is included (Attachment 2). In addition, Halifax Water also addresses specific customer fluoridation concerns or questions. Halifax Water also regularly publishes information pertaining to the fluoridation of drinking water in communications such as WaterTalk, mailouts and yearly publications such as the Annual Report and Stewardship Report. In fact, Halifax Water's upcoming Stewardship Report will contain an article titled "Drinking Water Fluoridation: You Ask, We Answer!" which addresses common customer concerns regarding drinking water fluoridation and is intended to provide accurate information on fluoridation practices for Halifax Water customers (Attachment 3).

Halifax Water communicates frequently with the Medical Officer of Health regarding common public health concerns related to drinking water quality, including fluoride. Persistent public health concerns related to drinking water quality are generally passed along to Environmental Health Consultants with the Nova Scotia Department of Health and Wellness and, if required, the Medical Officer of Health is engaged. The Medical Officer of Health has consistently stated that the addition of fluoride to drinking water has been found to be both a safe and effective public health measure. Nova Scotia Department of Health Protection and Promotion issued a position statement on drinking water fluoridation that reaffirmed the fluoridation of municipal drinking water as effective for the prevention of dental caries and that fluoridation at optimal levels does not cause adverse health effects.

Commissioners may be aware that Councillor Jennifer Watts recently identified two articles which implied negative health effects from fluoride in drinking water, and asked Halifax Water staff to consider anything relevant to current fluoridation practice in these articles. The prime article is an article in *The Lancet.* This article is not new research but is a discussion on substances that the authors have identified as potential neurotoxins, including fluoride, and the need for a framework in society to deal with these substances. The article references a study done in 2006 by the authors. Their conclusions related to fluoride were not based on original research but on a review of research done in China in 2006. The other article referenced by the Councillor is from a publication called *Natural News* which summarizes the same study contained in *The Lancet.*

What is of relevance to Halifax Water's position is that the referenced work was conducted in 2006, well in advance of Health Canada's most recent review of fluoride in 2010 and as such, the 2006 study

and its supporting research were available to Health Canada for their consideration when the fluoride guideline was last reviewed.

## SUMMARY

Drinking water fluoridation is a safe and cost effective public health practice that is supported by all major health authorities in North America. To that end, Halifax Water continues to support the fluoridation of drinking water as a beneficial public health practice for decreasing dental cavities and protecting oral health.

## BUDGET IMPLICATIONS

The cost of providing fluoridation in the Pockwock and Lake Major systems is approximately $155,000 per year in treatment chemicals, plus minor additional amounts for system preventative maintenance. All costs are included in current budgets and business plans.

## ATTACHMENTS

Attachment 1: Fluoride Information Package
Attachment 2: Halifax Water Typical Fluoride Response

IWK Health Centre

DALHOUSIE UNIVERSITY
Inspiring Minds
*Faculty of Dentistry*

NSDA
Nova Scotia Dental Association

The IWK Health Centre | Faculty of Dentistry, Dalhousie University | Nova Scotia Dental Association

## Fluoride Information Package

February 12, 2014

To Halifax Water Board of Commissioners

| | |
|---|---|
| Colleen Purcell, CA, Chair | Councillor David Hendsbee, B.Comm |
| Councillor Russell Walker, Vice Chair | Councillor Barry Dalrymple |
| Mayor Mike Savage | Don Mason |
| Richard Butts, HRM CAO | Ken Meech |

The Nova Scotia Dental Association, the IWK Health Centre and the Faculty of Dentistry, Dalhousie University are concerned that the oral health benefits of fluoridated public water may be in jeopardy in HRM, following a recent letter written to The Coast magazine by the Safe Water Halifax group. We are writing to you jointly to provide information on the oral health benefits of fluoride and offer to present to Council should there be future consideration of changing the current policy of fluoridating water.

Over the past few years, organized efforts have been made in two other Nova Scotia communities to cease the addition of fluoride to community water systems; in each of these cases, the arguments of dentistry and other health care providers in support of continued water fluoridation have been successful. In the event this becomes an issue raised within HRM in the future, the undersigned believe decision makers should have the best possible information about the oral health benefits of fluoridated drinking water.

Early childhood caries (ECC), is the most common chronic infectious disease of infants and toddlers. Recent studies show that like other areas of Canada there are high levels of this disease in Nova Scotia, particularly in non fluoridated areas. It causes children a great deal of pain and infection , yet is preventable with the assistance of community water fluoridation.

Attached is our Question and Answers document about community water fluoridation. Also included is the Nova Scotia Department of Health & Wellness' Position Statement on Water Fluoridation, as they firmly believe like we do, that fluoridated water is an important means of preventing dental decay – especially in children.

We would be pleased to answer any questions you might have or provide further information should the need arise.

Sincerely,

**Dr. Ross Anderson**
Chief of Dentistry, IWK Health Centre
Assistant Professor and Division Head, Paediatric Dentistry, Dalhousie University

**Dr. Tara Chobotuk**
Paediatrician, IWK Health Centre
Department of Paediatrics, Dalhousie University

**Dr. Tom Boran**
Dean, Faculty of Dentistry, Dalhousie University

**Dr. Stuart MacDonald**
President
Nova Scotia Dental Association

*Spring 2014*

# Fluoride Health & Safety

**Fluoride – is the fluoride used in CWF a drug, a nutrient, or something else?**

Fluoridation chemicals are considered treatment additives in the drinking water treatment process.
These chemicals are the source of the mineral nutrient fluoride.
Fluoride is considered a non-essential nutrient beneficial to human health.
Fluorides used in CWF are not considered drugs by Health Canada.
Note: Fluoride in products such as toothpaste and dental rinse are considered drugs under the Food and Drugs Act and are regulated under the Natural Health Products Regulations.

**Fluoridation chemicals – are they hazardous waste?**

Fluoridation chemicals (i.e. hydrofluorosilic acid) are derived from the fertilizer industry and are considered a hazardous recyclable material.
Fluoridation chemicals certified for use in drinking water are considered treatment additives in the drinking water treatment process and are not classified as hazardous waste in Canada.

**Fluoride dose – is the dose of fluoride controlled in CWF?**

The concentration of fluoride in drinking water is 0.7mg F/L is based in part on the assumption that most people consume about 1 L of water per day for a daily intake of 0.7 mg F per day. This level is lower than the recommended national level to ensure safety, and significantly lower than the required maximum concentration in America.
Health Canada uses a population-based approach in risk assessment and established guidelines in the sub-population likely to be most affected – young children aged 22-26 months old.
In the recent Canadian Health Measures Survey, Health Canada states there is no data to suggest that exposure to fluoride at typical levels found in drinking water would result in adverse effects for those consuming larger quantities of waters.

**Margin of safety – is the margin of safety for CWF sufficient to protect the most sensitive individuals in a community?**

Margin of safety is not a concept that is routinely used in the development of the Guidelines for Canadian Drinking Water Quality according to Health Canada.
Skeletal fluorosis, the adverse health effect associated with fluoride, would occur at exposure levels that are greater than 10 times the Canadian optimal concentration for CWF (Health Canada Federal-Provincial-Territorial Committee on Drinking Water (CDW)).

**Medical ethics – is it ethical to prescribe a "drug" without informed consent?**

Governments and health professionals have a responsibility to make decisions that balance the best possible community health outcomes with individual choices.
Preventing problems before they occur is vital to good health. Adjusting the level of fluoride in drinking water to prevent dental decay can be compared to current practices of adding Vitamin D to milk to maintain healthy bones, folic acid to breakfast cereals to reduce the risk of babies being born with neural tube defects or iodine into salt for thyroid health, and public health measures such as smoking restrictions, compulsory seat belts and immunization.

**Evidence base – is evidence supporting CWF of sufficient quality and strength?**

The study designs used to evaluate CWF include 'before and after' studies, cross sectional studies, ecological studies, cohort (prospective and retrospective) studies and case-control studies.
Given the nature of CWF, it is not practical to conduct a randomized controlled trial (RCT) to evaluate CWF.

**"The Great Fluoridation Gamble" – is enough known about the long term health effects of CWF?**
Health Canada recognizes that exposure to fluoride for extended periods of time is linked to dental fluorosis and, at extremely high levels, skeletal fluorosis. However, based on a thorough review of the available relevant scientific literature, Health Canada states that the weight of evidence does not support any other adverse effects. (Canadian Health Measures Survey, http://www.hc-sc.gc.ca/hl-vs/pubs/oral-bucco/fact-fiche-oral-bucco-stat-eng.php)

**CWF effect – what is the predominant CWF effect?**
Although the predominant benefit of fluoride is post eruptive and topical, CWF does provide a pre-eruption systemic effect as well as post-eruption topical effect, since part of its excretion mechanism is in saliva.

**Benefits - are the benefits of CWF presented in a balanced way?**
Although the reductions in the prevalence and severity of tooth decay (DMFT, DMFS (adult teeth)) in the population have decreased with time, there has been a notable increase in dmft, dmfs (baby teeth) according to the Centre for Disease Control (2007). A recent study in Canada (CIHI) shows that cavities in baby teeth are the most common reason for day surgery in Canada and that majority of children treated are from non fluoridated communities. The prevention of tooth decay on a single tooth surface at the individual level contributes to significant savings at the population level.

**Bottle-fed babies – are bottle-fed babies at risk?**
Health Canada states that there is no evidence to support a link between the exposure to infant formula reconstituted with drinking water at the Canadian MAC (1.5 mg F/L) and moderate and severe forms of dental fluorosis in the population.

**Children – do dental fluorosis levels indicated that children are overexposed to fluoride?**
Although the prevalence of dental fluorosis has increased in the USA since the 1980s, the increases have been in the 'very mild' and 'mild' forms which are of a cosmetic and not a functional nature. The CHMS indicated that so few children have 'moderate' or 'severe' fluorosis that even combined, the prevalence is too low to allow reporting.

**Bones – are bones protected from lifelong exposure to fluoride?**
Health Canada states that the weight of evidence from all currently available studies does not support a link between exposure to drinking water at 1.5mg/L and any adverse health effects.

**Bone cancer – is fluoride ingestion associated with bone cancer?**
Health Canada states that the weight of evidence from all currently available studies does not support a link between exposure to drinking water at 1.5mg/L and any adverse health effects.

**Preventing tooth decay – are there alternative ways of preventing tooth decay?**
Although there are alternatives to CWF, none are as cost effective as CWF.
The local decision to use CWF as a primary preventive measure is a value judgment.

**Benefit versus risk of harm – does the benefit of CWF outweigh the risks in 2014?**
Communities that do not have CWF tend to have a higher prevalence of tooth decay.
There are however locations without CWF that are reporting caries levels similar to those with CWF.

**Environmental health perspective vs Public health perspective – what is the difference between these perspectives of CWF?**

An environmental health perspective tries to minimize environmental and chemical risks & focus on protection of all members of the community.

This perspective supports alternative primary prevention measures to CWF.

A public health perspective attempts to provide the greatest good for the greatest number of people & focus on the "average" person.

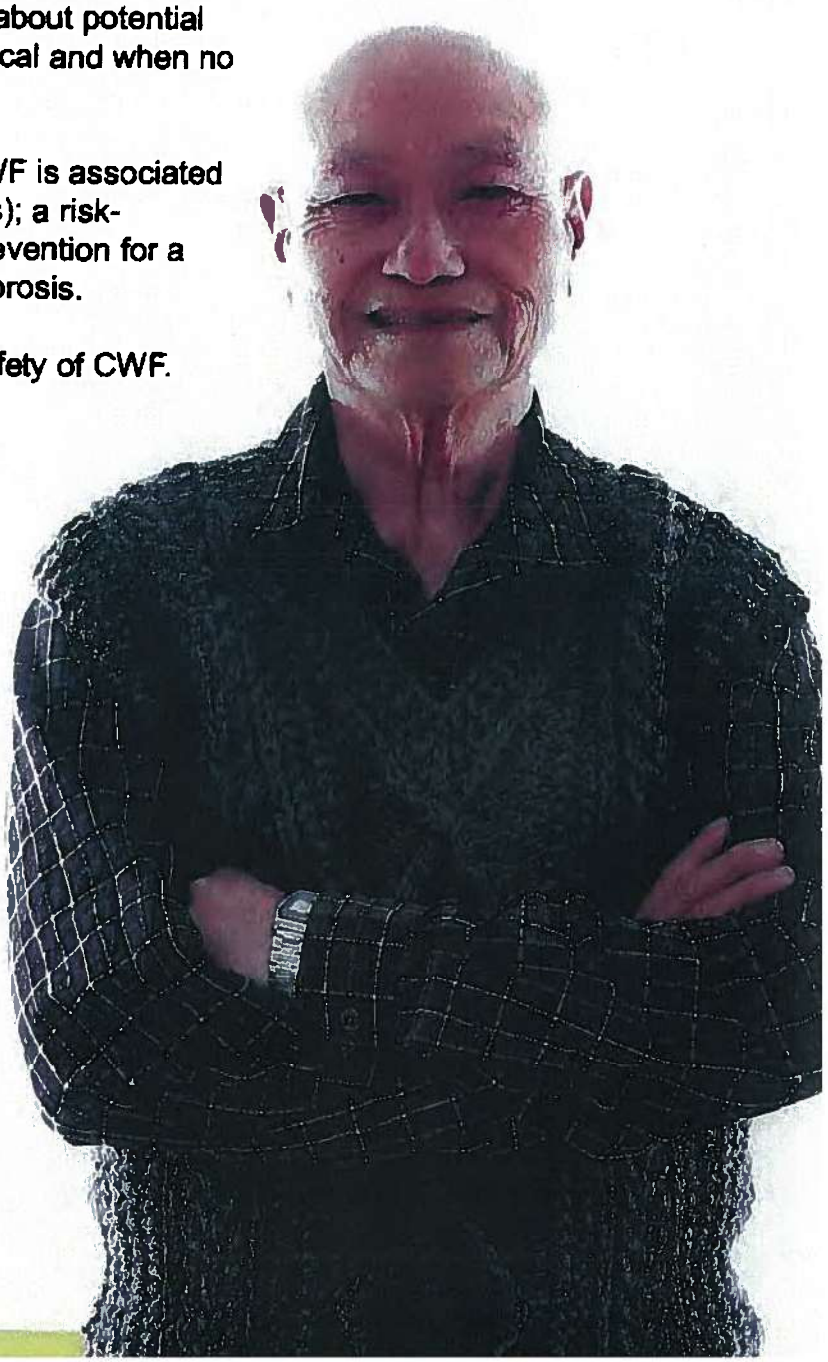
This perspective supports the practice of CWF as a primary prevention measure to reduce the risk of tooth decay in a community.

**Precautionary Principle vs Risk- based approach – what is the difference between these approaches to CWF?**

A precautionary approach to CWF considers alternative preventive measures with lower risks, or informs patients about potential risks, even when the risks may be only theoretical and when no credible evidence exists to suggest harm.

However, until credible evidence exists that CWF is associated with adverse events (other than dental fluorosis); a risk-based approach views the benefits of cavity prevention for a population as outweighing the risk of dental fluorosis.

The body of scientific evidence supports the safety of CWF.



**What do municipalities need to know before embarking on a course of fluoride delivery?**

The availability of fluorides from a variety of sources must be taken into account before embarking on a specific course of fluoride delivery to either populations or individual patients. This is particularly important for children whose overall fluoride intake should be taken into consideration to prevent the development of fluorosis. Communities considering water fluoridation are encouraged to review their individual circumstances carefully. Communities should evaluate overall exposure to fluoride giving attention to available data on the dental health of community members, the size of the group not likely exposed to adequate fluoride from other sources, the minimum level of fluoride required to be beneficial, the need for fluoride protection in all sub-segments of the populations while showing compassion for its most vulnerable members, and any other information which would be helpful in making this decision.

*Spring 2014*

# Frequently Asked Questions:

## General

**What is fluoride?**
Fluoride is a mineral found in soil, water (both fresh and salt) and various foods. While not essential to life, fluoride is considered to be a mineral nutrient beneficial to human health in safe doses.

**How does fluoride prevent tooth decay?**
Fluoride has a positive effect on oral health by making teeth more resistant to decay. Fluoride can also prevent or even reverse tooth decay that has started.

**Where do I get the fluoride that prevents tooth decay?**
For many Canadians, fluoride is in public drinking water, which provides protection to the entire community. Fluoride toothpastes and rinses are available for purchase, and dentists can provide professional fluoride products such as gels and varnish.

## Dental Fluorosis

**What is dental fluorosis?**
Dental fluorosis is a change in the appearance of teeth. It is caused when higher than optimal amounts of fluoride is ingested in early childhood. In its mildest and most common form, it affects the look of the tooth with small white specks appearing on a child's teeth.

**Is dental fluorosis a concern in Canada?**
The Canadian Health Measures Survey 2007-2009 found that dental fluorosis is not an issue of concern for the vast majority of children (84%). Some children (16%) have mild forms of fluorosis that often go unnoticed by both the children and their parents.

## Community Water Fluoridation

**What is water fluoridation?**
Water fluoridation is the process of adjusting the level of fluoride in a public drinking water supply to optimize the dental benefits of preventing tooth decay.

**Why is fluoride added to the public drinking water if it is available in other ways?**
Fluoride is added to public drinking water to protect all members of the community from tooth decay. Community water fluoridation is a safe and effective way of preventing tooth decay at a low cost.

**Who watches the fluoride levels in the drinking water?**
The Federal-Provincial-Territorial Committee on Drinking Water makes recommendations about the optimal level of fluoride in public drinking water to prevent tooth decay. The recommended level takes into account that Canadians receive fluoride from other sources such as food and beverages.

**What does an "optimal" level of water fluoridation mean?**
An optimal level of water fluoridation is achieved by adjusting the level of fluoride in the water to find the right balance between the benefit of preventing tooth decay and the risk of developing dental fluorosis.

**Are there any health risks associated with water fluoridation?**
With the exception of dental fluorosis, scientific studies have not found any credible link between water fluoridation and adverse health effects.

# Fluoride Toothpaste

**Should I be using fluoridated toothpaste with my child?**

For children from birth to 3 years of age, the use of fluoridated toothpaste is determined by the level of risk of tooth decay. Parents should consult a health professional to determine whether their child up to 3 years of age is at risk of developing tooth decay. If such a risk exists, the child's teeth should be brushed by an adult using a minimal amount (a portion the size of a grain of rice) of fluoridated toothpaste. Use of fluoridated toothpaste in a small amount has been determined to achieve a balance between the benefits of fluoride and the risk of developing fluorosis. If the child is not considered to be at risk, the teeth should be brushed by an adult using a toothbrush moistened only with water.

For children from 3 to 6 years of age, only a small amount (a portion the size of a green pea) of fluoridated toothpaste should be used. Children in this age group should be assisted by an adult in brushing their teeth.

**Why do young children need to be assisted or supervised with tooth brushing?**

Young children tend to swallow toothpaste when they are brushing, which if it becomes a habit over a long period of time, could increase their exposure to fluoride and contribute to dental fluorosis. For this reason, children need to be assisted or supervised with tooth brushing. An adult needs to ensure that an appropriate amount of toothpaste is used, that the child spits out the toothpaste rather than swallows it, and that the teeth are cleaned effectively.

**How do I know if my child is getting enough fluoride protection?**

Your dentist is able to assess your child's risk of developing tooth decay and advise you of an appropriate level of fluoride protection.

# Fluoride and Your Child

Fluoride is a mineral found in soil, water (both fresh and salt) and various foods. It has a positive effect on oral health by making teeth more resistant to decay. Fluoride can also prevent or even reverse tooth decay that has started.

Fluorides are used by communities as a public health measure to adjust the concentration of fluoride in drinking water to an optimum level (community water fluoridation); by individuals in the form of toothpastes, rinses, lozenges, chewable tablets, drops; and by the dental profession in the professional application of gels, foams and varnishes.

The availability of fluorides from a variety of sources must be taken into account before embarking on a specific course of fluoride delivery. This is particularly important for children under the age of 6, where exposure to more fluoride than is required to simply prevent dental caries can cause dental fluorosis. Provided that the total daily intake of fluoride is carefully monitored, fluoride is considered to be a most important health measure in maintaining oral health.

Dentists and other trained health care providers are able to assess your child's risk of developing tooth decay and advise you of an appropriate level of fluoride protection.

**NOVA SCOTIA DEPARTMENT OF HEALTH AND WELLNESS**

**- POSITION STATEMENT ON WATER FLUORIDATION -**

The Nova Scotia Department of Health and Wellness supports fluoridation of municipal drinking water supplies in Nova Scotian communities as a safe, effective and economical means of preventing dental caries in all age groups.

Fluorides are found naturally throughout the world. They are present to some extent in all food and water so that all humans ingest some fluoride on a daily basis. In optimal concentrations, fluoride protects the teeth from caries (cavities) without any known harmful effects.

Fluoride may be used by individuals in the form of toothpastes, rinses, etc. or applied professionally in the form of gels, foams or varnishes. Fluoridation of the drinking water supply at minimum levels required for efficacy ensures its benefits are equally available to all, regardless of socioeconomic circumstance.

The fluoridation of drinking water supplies is a well-accepted measure to protect public health and is strongly supported by scientific evidence. It continues to be endorsed by over 90 national and international professional health organizations including Health Canada, the Canadian and American Dental Associations, the Canadian Medical Association, the World Health Organization and the Food and Drug Administration of the United States.

An expert panel, commissioned by Health Canada to review the scientific studies available on fluoride and its possible effects on health made a number of recommendations to Health Canada, including:

- to decrease slightly the amount of fluoride that can be added to municipal drinking water,
- to encourage the availability and use of low-fluoride toothpaste by children, and
- to suggest to makers of infant formula to reduce levels of fluoride in their products

This report was submitted to the federal government in January of 2007, and made public in June, 2008 on Health Canada's website.

The current optimal fluoride concentration for caries prevention is .7 mg/L. Levels should be monitored and adjusted to ensure consistency in concentrations and avoid fluctuations.

The safety and efficacy of water fluoridation has been frequently studied and continues to be supported by current science. Canadian and international studies agree that water that was fluoridated at optimum levels does not cause adverse health effects.

Communities considering water fluoridation should review their individual circumstances, giving attention to the dental health of community members, the likely exposure to adequate fluoride from other sources, and existing natural fluoride levels before making the decision.
Requests for further information may be directed to your Public Health Dental Hygienist or to the provincial Chief Public Health Officer through the Department of Health Promotion and Protection.

**Supporting Scientific Studies:**

Findings and Recommendations of the Fluoride Expert Panel (January, 2007)
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2008-fluoride-fluorure/index-eng.php

National Health and Medical Research Council of Australia. 1999:
"Water Fluoridation at optimal levels continues to provide significant benefits in the prevention of dental caries for both deciduous (baby) and permanent (adult) teeth. It remains the most effective means of achieving community-wide exposure to the caries preventive effects of fluoride and should remain unchanged."

Oral Health in America: A Report of the Surgeon General. 2000:
"Community Water Fluoridation 'is 'safe and effective in preventing 'dental caries "in 'both children and adults,, Water fluoridation benefits all residents serviced by community water supplies regardless of their social or economic status
http://www.cdc.gov/fluoridation/fact_sheets/sg04.htm

Systematic Review of Water Fluoridation. UK/International study. 2000:
"Fluoridation of drinking water supplies does reduce caries prevalence, both as measured by the portion of children who are caries free and by the mean change in deft/DMFT Score." The deft Score determines the dental caries status for primary teeth decayed.
(d= decayed, e = extracted due to caries, f = filled t = teeth)
http://www.york.ac.uk/inst/crd/pdf/fluorid.pdf

Water Fluoridation. US Department of Health and Human Services Centers for Disease Control and Prevention. 2001
"Fluoride has contributed profoundly to the improved dental health of persons in the United States and other countries. Fluoride is needed regularly throughout life to protect teeth against tooth decay. To ensure additional gains in oral health, water fluoridation should be extended to additional communities."
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm

European Fluoridation Forum. 2002
"Water fluoridation has been very effective in improving the oral health of the Irish population, especially of children, but also of adults and the elderly"
...."The prevalence of dental decay is approximately 30-50% lower in fluoridated areas of the Republic of Ireland compared with non fluoridated areas in Northern Ireland."
http://www.dohc.ie/publications/pdf/fluoridation_forum.pdf?direct=1



Dr. Stuart MacDonald
President
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Dr. Ross Anderson
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Assistant Professor and Division Head,
Paediatric Dentistry, Dalhousie University

Dr. Tom Boran
Dean, Faculty of Dentistry,
Dalhousie University

**Item #3A**
**HRWC Board**
**April 24, 2014**

**Attachment 2**
**Halifax Water Typical Fluoride Response**

Thank you for writing regarding your concerns about fluoridation of drinking water. The issue of fluoridation of drinking water is certainly one that is of concern to a segment of our population and one where we continue to get questions from time to time.

Halifax Water fluoridates water in the Pockwock (Halifax, Bedford, Sackville, Timberlea) and Lake Major (Dartmouth, Cole Harbour, Eastern Passage, North Preston) systems. Like numerous other utilities across North America, fluoride addition began in these systems in the 1950's at the encouragement of the Public Health Officer for the public health benefit of preventing and reducing dental caries. Fluoridation practice is regulated by Nova Scotia Environment through operating approvals and the Guidelines for Canadian Drinking Water Quality (GCDWQ), published by Health Canada.

Fluoride is one of a number of drinking water parameters over which there are strong differences of opinion. There are several well organized anti-fluoridation groups, all of which can cite authorities who are speaking out against fluoridation of drinking water. Conversely, public health authorities are near unanimous in support of fluoridation of drinking water.

While Halifax Water conducts considerable water quality research, it is primarily focused on Halifax Water specific issues. Fluoride is an issue of broad national and North American wide concern. On issues such as this, Halifax Water relies on the Guidelines for Canadian Drinking Water Quality to determine what is or is not safe. The GCDWQ are prepared by Health Canada and used to varying degrees by each jurisdiction in Canada for regulatory purposes. The GCDWQ includes guidelines on approximately 140 parameters including over 80 chemical parameters. To set a guideline, the committee, representing each province and territory, and Health Canada, collects and considers the full body of scientific evidence on a parameter. The committee can and does commission additional research where the available body of research is found to be inconclusive or incomplete. The committee is supported by a diverse staff of public health professionals consisting of medical doctors and experts in epidemiology and toxicology. The committee also considers all possible means of exposure (not just through drinking water) and after a public comment period, sets a limit for safe exposure through drinking water. This is a non-biased process that attempts to reach a decision while considering all available scientific evidence. For that reason Halifax Water follows Health Canada and the advice of the Medical Officer of Health.

In December 2010, Health Canada completed a review of the issue of fluoride in drinking water and issued a new guideline on fluoride. The most recent guideline reaffirmed a Maximum Acceptable Concentration (MAC) of 1.5 mg/L and revised the optimum concentration for dental health protection slightly downward to 0.7 mg/L. Additionally, Health Canada reaffirmed that there is a public health benefit to fluoride in drinking water and that there is no apparent health

risk from consuming fluoride in drinking water at the concentrations found in municipal supplies. In recent years, several noted public health agencies have reviewed fluoride including the USEPA, the Centers for Disease Control and the World Health Organization and all have reached a similar conclusion as Health Canada.

The revised guideline can be viewed at the following link:
http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2011-fluoride-fluorure/index-eng.php
Nova Scotia Department of Health Protection and Promotion issued a position statement on drinking water fluoridation. The position statement was developed based on the findings of an expert panel convened by Health Canada in 2007 on the same topic. Both documents reaffirmed the fluoridation of municipal drinking water as effective for the prevention of dental caries and that fluoridation at optimal levels does not cause adverse health effects. I have attached this statement for your review.

We monitor concentrations in the treated water on a daily basis to ensure that the target fluoride levels are being achieved at all times. Average fluoride levels in our treated water are reported on our webpage under the Typical Analysis link:
http://www.halifax.ca/hrwc/documents/Pockwock-LakeMajor20112012.pdf

I trust that the information provided in this email addresses your specific concerns. If you have additional questions, feel free to contact me.

Public Health Package:

# Supporting Continued Water Fluoridation in Halifax Regional Municipality, including Resumption of Fluoridation at Lake Major Water Supply Plant

## Contents:

*(Click to jump to section)*



nova scotia health
Public Health

*Presented to Halifax Water Board of Commissionaires for their January 30, 2025 meeting.*

Central Zone Public Health
7 Mellor Ave., Unit 5
Dartmouth, NS B3B 0E8

January 17, 2025

Halifax Water
450 Cowie Hill Rd.
Halifax, NS B3P 1P1

**RE: Supporting Continued Water Fluoridation in Halifax Regional Municipality, including Resumption of Fluoridation at Lake Major Water Supply Plant**

Dear Halifax Water Board of Commissioners,

In response to the recent interruption of water fluoridation at the Pockwock Lake and Lake Major water supply plants, Central Zone Public Health has been asked to submit recommendations to Halifax Water on the issue of community water fluoridation in Halifax Regional Municipality (HRM).

**Central Zone Public Health, Nova Scotia Health and the Department of Health & Wellness, Public Health Branch strongly support the continued use of fluoride in HRM's water supply plants to help prevent tooth decay and promote oral health in residents.** We were pleased to learn of the resumption of fluoride at Pockwock Lake Water Supply Plant in December 2024. We recognize the complications at the Lake Major Water Supply Plant are due to changes in the lake water quality and space constraints. **It is our strong recommendation that Halifax Water resume fluoridation at Lake Major Water Supply Plant as soon as it is operationally possible.**

Community water fluoridation is an important, safe and effective measure to improve oral health, which is essential to overall health and well-being at every age and stage of life. Adding fluoride to water is one of the most cost-effective and equitable public health interventions available, reaching everyone in a community regardless of their age, income or access to dental care services or supplies.

As you prepare to decide on next steps for fluoridation at the Lake Major Water Supply Plant, we invite you to review the supporting documents provided in this package.

Thank you for the opportunity to submit this package and show how community water fluoridation remains instrumental for our community. We look forward to continued collaboration and partnership with Halifax Water throughout this process and into the future.

Sincerely,

CRLBrown

Dr. Catherine Brown
Regional Medical Officer of Health, Central Zone Public Health
Nova Scotia Health

SRadford

Shelley Radford
Director, Central Zone Public Health
Nova Scotia Health

Halifax Water Board Of Commissioners
P.O. Box 8388, RPO CSC
Halifax NS
B3K 5M1

Jan. 2, 2025

Dear Halifax Water Board Of Commissioners,

RE: **Municipal water fluoridation in Halifax Regional Municipality and prevention of childhood dental caries**

I was pleased to hear that the Lake Pockwock facility has been able to resume the fluoridation of drinking water, and I am writing to confirm that I am in full support of the resumption of water fluoridation in the Dartmouth Lake Major catchment area as soon as possible. There is no doubt that lack of water fluoridation increases the rate of dental caries (cavities) for vulnerable populations.

As a pediatric dentist and the Chief of Dentistry at IWK Health, I manage this disease daily. Our referral numbers and waitlists for dental surgery under general anesthesia are a well-known problem and are reported regularly to the Department of Health and Wellness. Many of the children referred to our service will require the use of general anesthesia for their dental treatment due to their inability to cooperate or the extensive nature of their treatment needs.

At IWK Health, Dentistry uses more operating room time than any other surgical service, at approximately 30% of all hours. This is the case at most pediatric tertiary care hospitals across Canada. At IWK Health, we also have the greatest number of surgical "long waiters," children who have waited more than one year for their dental surgery. Most children in our system do not have surgery within recommended surgical access times, as defined by their "PCAT" (Pediatric Canadian Access Target) codes.

Without hesitation, I can predict that lack of water fluoridation will increase the presence of this disease, the number of referrals to our service and the need for dental treatment under general anesthesia.

Reducing surgical wait times has been identified as a priority in the Nova Scotia government's "Action for Health" plan and programs and policies that support water fluoridation would be a direct investment in that priority. IWK Health would strongly support any Halifax Water initiatives that would encourage the continuation or re-initiation of water fluoridation.

Sincerely,

Dr. Heather Dyment
Chief, Dentistry
IWK Health
heather.dyment@iwk.nshealth.ca

DALHOUSIE UNIVERSITY

IWK Health

**Healthy Respectful Workplaces** **Every Child Matters** **Black Lives Matter** **Better Futures**
**Quality Care** **Discover & Innovate** **Educate & Mentor** **Lead & Advocate**

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**Dr. Andrew Lynk MD MSc. CTM FRCPC D.Litt (Hons)**
Chief of Pediatrics IWK Health Centre Halifax Nova Scotia
Chair of Pediatrics & Associate Professor Dalhousie University

To: **The Halifax Water Commission** Jan 2nd, 2025

Re: HRM Community Water Fluoridation

Dear Commissioners,

I am writing in support of continued HRM community water fluoridation. When CWF follows recommended concentrations and processes, this is a safe and modestly effective way to prevent widespread dental caries across all populations of people. This public health intervention alleviates a lot of needless suffering, time lost from school and work, and makes better use of our healthcare resources.

Supporting evidence-based documents include:

1) Canadian Paediatric Society (2021): https://cps.ca/en/documents/position/early-childhood-caries

2) American Dental Association (2024): https://jada.ada.org/article/S0002-8177(24)00567-1/fulltext

**Yours sincerely,**

**Andrew D. Lynk MD**

DALHOUSIE UNIVERSITY

Wednesday, January 8, 2025

Halifax Water Board of Commissioners
450 Cowie Hill Road
Halifax, NS B3P 1P1

Dear Halifax Water Board of Commissioners,

**RE: Community water fluoridation in Nova Scotia and prevention of tooth decay burden**

We write to express our support for the immediate reinstatement of community water fluoridation at the Lake Major Water Supply Plant in Nova Scotia.

Community water fluoridation has been well-examined for over almost 80 years worldwide. Its benefits and safety have been confirmed. Fluoridation is the most effective and equitable way to prevent tooth decay and reduce oral health inequalities. In fact, the U.S. Centers for Disease Control and Prevention have designated community water fluoridation as one of the ten great public health achievements of the 20th Century. The World Health Organization proposes safe and optimal levels of community water fluoridation as a global target in the Global Strategy and Action Plan on Oral Health 2023-2030.

Tooth decay is one of the most common chronic diseases, affecting over 2.5 billion children and adults. Tooth decay causes pain, difficulty chewing and speaking, low self-esteem, social vulnerability, and missed school and workdays. By increasing hospital emergency visits, dental decay is costly to the healthcare system. The economic burden of tooth decay worldwide in 2015 was $245 billion/year. People living with socioeconomic challenges and those with limited or no access to dental services, fluoride products, and healthy food options are at higher risk for tooth decay. This group includes low-income racial and ethnic minorities, people in underserved communities, persons living with disabilities, and young children and older persons who depend on others for care.

Facts about tooth decay and fluorides:

- Tooth decay is a common chronic disease. Bacteria in the mouth produce acids from sugars and starches present in food. Acids damage teeth by eroding the protective enamel. Tooth decay is progressive; if left untreated, it leads to pain and infection, requiring time-consuming, expensive, and complex care.
- Fluoride, a mineral that occurs naturally, helps prevent tooth decay by strengthening tooth enamel against bacterial damage.
- Community water fluoridation (adjusted to 0.6-0.8 mg/L) optimizes the protective effect of fluoride; a 25-30% reduction in tooth decay is available to everyone who drinks fluoridated tap water.
- For every dollar invested in community water fluoridation, we can save $5 to $93/person in dental treatment costs depending on the population it serves. The larger the population, the greater the savings.

- Fluoridated toothpaste used twice daily enhances protection of tooth enamel by an additional 25-30% reduction in tooth decay.
- Well-conducted research shows no harm from community water fluoridation. Yet, since fluoridation's inception in 1945, it has been unjustifiably attacked. In the 1950s, people claimed it was a communist plot. In the 1970s, researchers claimed that fluoridation caused cancer. Currently, some researchers claim that fluoridation affects child IQ. All these claims are false. Fluoridation's safety has been demonstrated over almost 80 years.
- Dental fluorosis—a cosmetic condition affecting the appearance of tooth enamel. At 0.7mg of fluoride in water, the risk of fluorosis is very low.

At Dalhousie University's Faculty of Dentistry, we are committed to addressing tooth decay for all members of the public. We provide dental care to patients at a reduced cost, and some eligible persons are offered free dental care. However, our adult patients face long waitlists, and our institution bears significant financial strain. Vulnerable groups, such as disabled individuals and older persons experiencing frailty and dependency on others, often have little or no protection against tooth decay, as well as limited access to dental care. Our students and faculty members provide dental care to children at IWK Health. Many require complex and expensive procedures performed under general anesthesia in operating rooms. Such procedures occupy one-third of all surgical services provided at IWK Health. Treatment delays often exceed a year, leaving children to experience continued pain and infection during that interval.

Dental decay is preventable. Community water fluoridation is necessary to curb the burden of tooth decay and associated problems in our communities. Reducing the need for costly and complex treatment in operating rooms and offsetting emergency department visits for dental problems would result in tremendous time and cost savings for our healthcare system. It would also increase the availability of operating rooms for other non-dental surgeries, a priority in "Action for Health".

The Federal Government has allocated $13 billion over five years for dental treatment. Prevention is always better than treatment and less expensive, too.

As a Dental Public Health specialist and the Dean of Dentistry at Dalhousie University, we strongly recommend water fluoridation be a priority in Nova Scotia's Oral Health Action Plan and support government efforts to initiate, continue, and reinstate water fluoridation in communities throughout Nova Scotia

Sincerely,

Dr. Violet D'Souza, PhD, MS, MSc, BDS
Dental Public Health Specialist
Assistant Professor, Faculty of Dentistry
Dalhousie University
violet.dsouza@dal.ca

Dr. Ben Davis, BSc, DDS, FRCD(c), Dip OMFS
Dean, Faculty of Dentistry
Professor, Oral and Maxillofacial Sciences
Dalhousie University
benjamin.davis@dal.ca

CC: Dr. Robert Strang
Chief Medical Officer of Health, robert.strang@novascotia.ca

College of Dental Hygienists of Nova Scotia

202-1597 Bedford Hwy,
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T. 902.444.7241
www.cdhns.ca

January 14, 2024

Halifax Water Board of Commissioners
Halifax Water
450 Cowie Hill Rd
Halifax NS B3P 1P1

Dear Halifax Water Board of Commissioners,

Thank you for the opportunity to provide you with input regarding the importance of community water fluoridation. The College of Dental Hygienists of Nova Scotia (CDHNS) is the regulatory body responsible for regulating dental hygienists in Nova Scotia.

Dental hygienists are regulated, licenced health professionals who have a primary focus on oral disease prevention. As the dental hygiene regulator, we are committed to improving oral health for all Nova Scotians.

With this commitment in mind, the CDHNS strongly supports the continuation and implementation of community water fluoridation programs as an evidence-based, public health measure to prevent tooth decay and promote overall well-being. **As such, the CDHNS strongly supports the use of fluoride in Nova Scotia's water supply plants, including those within the Halifax Regional Municipality (HRM).**

Oral health is important to overall health and well-being at every age and stage of life. A healthy mouth allows a person to eat, speak, learn and socialize. It can also impact a person's self-esteem, confidence, and quality of life. Dental hygienists see firsthand the impact of tooth decay on children and adults, including seniors, in their communities.

Tooth decay continues to be the most common childhood preventable chronic disease in Canada, and it remains a significant oral health problem worldwide for both children and adults. In Canada, approximately 96% of adults have a history of dental caries, and nearly 57% of children aged 6 to 11 have experienced dental caries in their primary teeth.[1] This can impact children's growth and development, behaviour, and ability to learn, socialize and play.

Extensive scientific research and decades of practical application have demonstrated that community water fluoridation is a safe, effective, and equitable method to reduce the prevalence of dental caries. Numerous studies show that fluoridation reduces dental decay by approximately 25% in children and adults, regardless of age, socioeconomic status, or access to dental care.[2]

From a public health perspective, water fluoridation is cost-effective, saving communities money by reducing the need for restorative dental care. Furthermore, community water fluoridation promotes oral health equity by providing widespread protection against tooth decay, especially in underserved populations who may lack access to regular oral health care.[3]

As a regulatory body, we uphold the responsibility to advocate for scientifically validated practices that protect and improve public health. In this capacity, we encourage community leaders, policymakers, and other interested parties, to prioritize water fluoridation efforts to safeguard the oral health of current and future generations.

We welcome the opportunity to collaborate with you to further educate the public about the benefits of water fluoridation and to address any concerns based on misinformation or misconceptions. Please feel free to contact us at registrar@cdhns.ca.

Thank you for your dedication to fostering healthier Nova Scotian communities. We stand ready to support and advocate for initiatives that enhance public oral health through proven preventive measures such as community water fluoridation.

Sincerely,

Stacy Bryan

CDHNS Registrar

**Footnotes**

[1] Canadian Health Measures Survey (CHMS). (2007–2009). *Oral Health Statistics in Canada*. Statistics Canada.

[2] Centers for Disease Control and Prevention (CDC). (2018). *Community Water Fluoridation: Fluoridation Basics*. https://www.cdc.gov/fluoridation/index.html; **and** Griffin, S. O., Regnier, E., Griffin, P. M., & Huntley, V. (2007). *Effectiveness of fluoride in preventing caries in adults*. Journal of Dental Research, 86(5), 410-415. https://doi.org/10.1177/154405910708600504

[3] National Institute of Dental and Craniofacial Research (NIDCR). (2020). *Oral Health Disparities in the United States: The Need for Action*. https://www.nidcr.nih.gov/; **and** McLaren, L., & Singhal, S. (2016). *Does cessation of community water fluoridation lead to an increase in tooth decay? A systematic review.* BMC Oral Health, 16, 43. https://doi.org/10.1186/s12903-016-0203-z

Halifax Water Board Presentation | January 7, 2025

# Why Public Health, IWK Health, and Partners Recommend Community Water Fluoridation

**Dr Catherine Brown, MD MSc CCFP FRCPC**
Regional Medical Officer of Health, Central Zone Public Health

**Dr Heather Dyment, DDS Dip. Paed., FRCDC**
Chief of Dentistry, IWK Health

nova scotia health Public Health

IWK Health

# Purpose

- To highlight the individual health, population health, and equity benefits of community water fluoridation (CWF) in Halifax
- To better understand the recent evidence and its limits around potential risks of CWF
- To increase knowledge on the impacts and costs of ceasing CWF

# Recommendation

Central Zone Public Health strongly supports:

- **Continued use of fluoride in Halifax's water supply plants** to help prevent tooth decay and promote oral health in the residents of Halifax Regional Municipality

- **Reinstating fluoride with minimum delay to Lake Major water supply plant**, while acknowledging the need to minimize operational risks related to source water quality

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# Other Organizations Who Endorse CWF

**CWF is endorsed by more than 90 provincial, national, and international professional organizations, associations, and governments**

**In Nova Scotia, this includes:**

- IWK Health – Department of Dentistry
- Dalhousie University – Faculty of Dentistry
- Nova Scotia Health – Public Health
- Department of Health & Wellness – Public Health Branch
- Nova Scotia Dental Association
- College of Dental Hygienists of Nova Scotia

Learn more:
[The State of Community Water Fluoridation across Canada - Canada.ca]

# Why Community Water Fluoridation?

- **Preventative Approach**: It's the most impactful tool to prevent tooth decay before treatment is required
- **Equitable**: It improves oral health for everyone, regardless of age, income, or access to dental care services & supplies
- **Regulated and Monitored**: To ensure optimal fluoride levels always maintained
- **Safe**: Decades of research support safety
- **Cost-Effective**: Every dollar spent on CWF saves $5.49 to $93.19

Learn more:
The State of Community Water Fluoridation across Canada - Canada.ca

# Why is fluoride important for oral health?

Fluoride is a mineral that is found naturally in water, soil, plants, and food, and is added to various dental products. **It strengthens teeth and prevents tooth decay.**

Fluoride prevents tooth decay in two ways:

1. **Topically**: Outside of teeth come in direct contact with fluoride in drinking water making teeth stronger
2. **Systemically**: When fluoridated water is consumed, fluoride is made available inside the body to become part of tooth's structure while it is still developing

**Evidence shows that receiving fluoride in both ways leads to greater benefits in reducing tooth decay**

Learn more:
Fluoride: Topical and Systemic Supplements | American Dental Association

IWK Health

# Why does dental decay matter?

Dental decay can be invasive in a person and their family's daily life due to:

- Pain
- Infection
- Sleep disturbances – cascading impacts on growth and development
- Lost time at work & school
- Damage to developing adult teeth structure/alignment

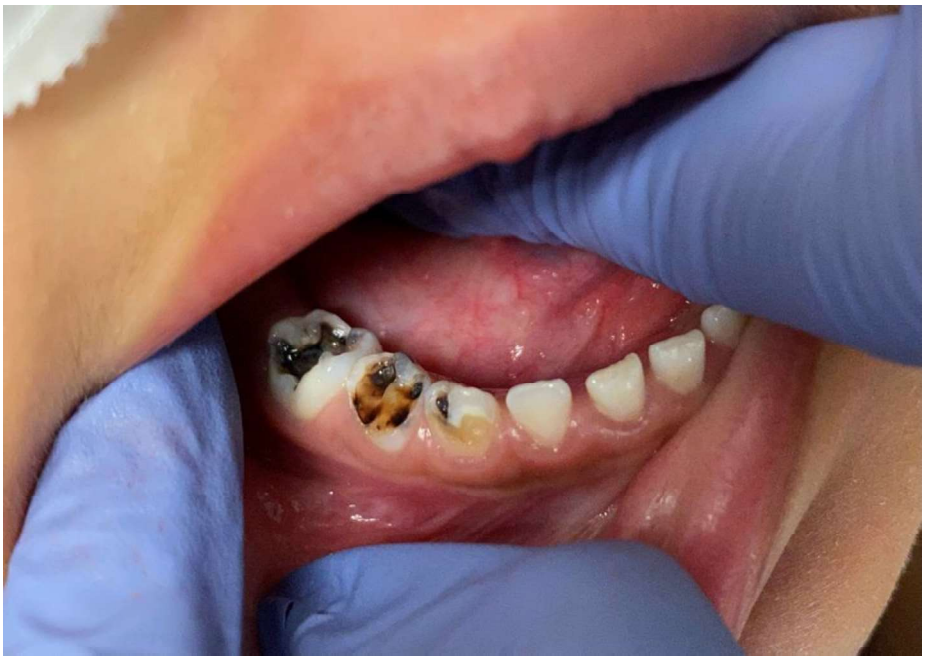
Learn more:
Oral health for adults - Canada.ca
Oral health for children - Canada.ca
Canadian Dental Association

IWK Health

# What does dental decay look like?

IWK Health

# What does dental decay look like?



IWK Health

# Dental Infection – Cellulitis

IWK Health

# Dental Infection – Cellulitis

IWK Health

# IWK Health: Use of Operating Room


IWK Health

# The Shocking Statistics…

- Dental procedures are the **most common reason** preschool children require general anesthesia
- **Over 30% of pediatric day surgical time** in Canada is consumed by dental treatment

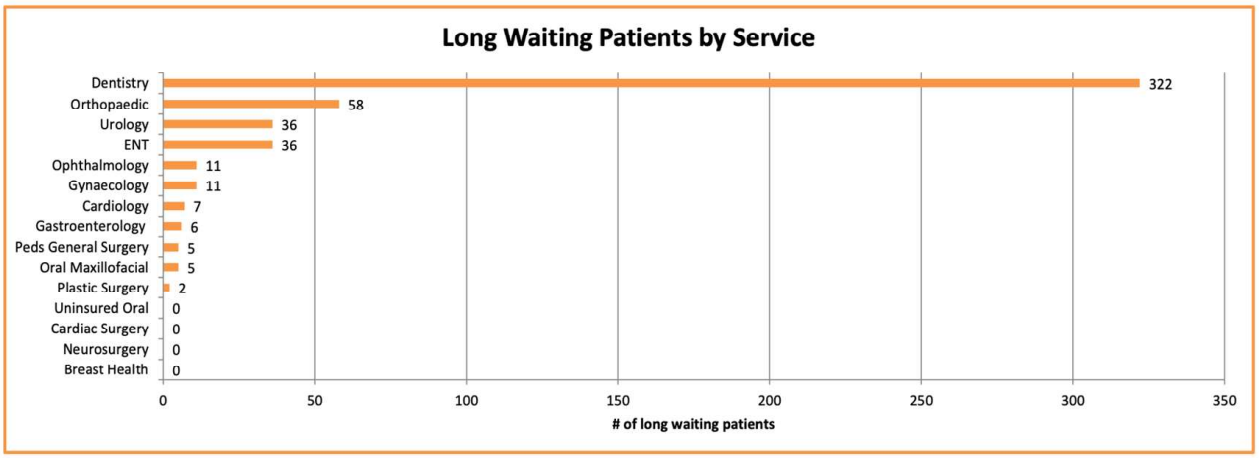
Learn more:
CIHI | Treatment of Preventable Dental Cavities in Preschoolers

# Current IWK Health Dentistry Situation

- Average **number of referrals/year** for last 3 fiscal years = **1,464**
- Approximately **85%** of all patient referred require the use of general anaesthesia for treatment
- Predict need to complete **1,244 cases/year**
- Average **number of operating room cases/year** for last 3 fiscal years = **884**

IWK Health

# IWK Dentistry Surgical "Long Waiters" Over one year wait – Oct. 2024




IWK Health

# A story from the operating room: Jan 2, 2025

- Simon – 8-year-old boy living in Dartmouth in the Lake Major water supply catchment area
- Referred by family dentist in January 2024
- Seen for consultation May 2024 and placed on Operating Room waiting list
- At the time of consultation, **all teeth were restorable**
- Phone call with pain, November 2024 : re-triaged
- At the time of treatment, Jan 2, 2025: **required removal of 4 permanent molars**

IWK Health

# CWF is equitable

- Canadians living with low-income are almost **twice as likely** to suffer from poor oral health compared to high income Canadians
- Water fluoridation is a **cost-effective measure** to narrow the gap when it comes to oral health and tooth decay
- CWF **benefits all residents in a community**, regardless of age, socioeconomic status, education, oral hygiene practices, employment or access to routine dental care, making it a truly equitable public health practice

Learn more:
Position statement on Community Water Fluoridation - Canada.ca
The State of Community Water Fluoridation across Canada - Canada.ca

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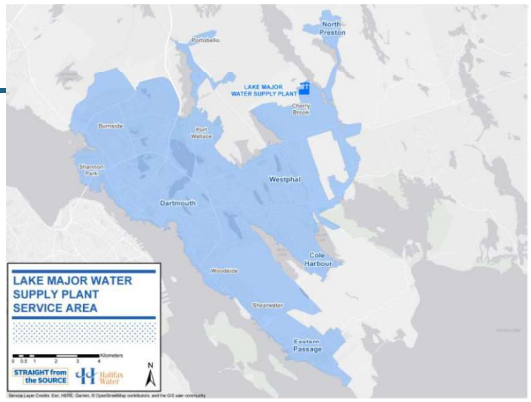
# Who lives in the Lake Major Water Supply  Plant Service Area?



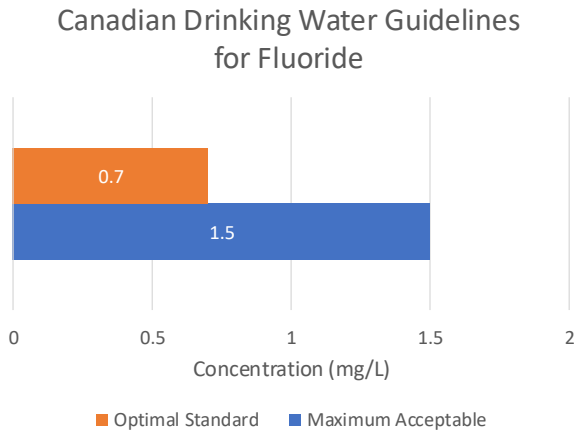

- **Lake Major serves 118,000 people** in the communities of Dartmouth, Burnside, Cole Harbour, Westphal, North Preston, and Eastern Passage
  - Includes two prominent historic African Nova Scotian communities, **North Preston** and **Cherry Brook**
- Many communities served by the Lake Major plant face overlapping challenges like **income inequality, racism, discrimination and food insecurity**
  - They also experience higher rates of cancer, diabetes, heart disease, respiratory issues, and skin conditions due to water and air pollution
- **These are the communities that experience the greatest benefit from CWF**

Learn more:
Environmental Racism and Climate Change: Determinants of Health in Mi'kmaw and African Nova Scotian Communities - Canadian Climate Institute
Water Service Advisory - Dartmouth & Area Water Supply Upgrades | Halifax Water

# CWF is regulated and monitored

- The Guidelines for Canadian Drinking Water Quality has established the maximum acceptable concentration of fluoride in drinking water at 1.5 mg/L
- Health Canada set optimal standard for CWF at 0.7mg/L, less than half of the maximum level
  - This accounts for fluoride coming from other sources (e.g., access to dental treatments, toothpaste, mouth rinses, etc.)
- **In NS, municipal water supply plants that offer CWF test drinking water daily to ensure optimal fluoride levels are maintained**

Learn more:
Guidelines for Canadian Drinking Water Quality: Fluoride Guideline Technical Document
NS Treatment Standards for Municipal Drinking Water Systems

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# CWF is safe

- Decades of extensive research has shown that CWF is safe when optimal fluoride concentrations (0.7 mg/L), less than half of the regulated level, are maintained

- Repeated exposure to fluoride at higher levels than Canada's regulated maximum (1.5 mg/L) has been associated with potential risks. Daily monitoring prevents this from occurring in Nova Scotia

- NSH Public Health and many others (including Health Canada) closely monitor new research on water fluoridation to inform recommendations
  - Emerging evidence is not strong enough to change water fluoridation guidelines

Learn more:
Fluoride and Oral Health - Canada.ca

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# What does current evidence show about excess fluoride and cognitive development?

Recent systematic reviews have found an association (not cause and effect) between high fluoride exposure (>1.5 mg/L) and lowered IQ in children:

- Included research came from different study populations (e.g., China, India, Iran, New Zealand, Mexico, Canada), and the fluoride exposure was double or greater than the optimal level for water fluoridation in Nova Scotia and Canada
- The evidence is mixed: most studies found some evidence of an association, with some studies showing no association
- More research is needed to better understand this relationship

**Evidence does <u>not</u> support a link between decreased IQ and water fluoridated at optimal levels using current guidelines in Canada**

Learn more:
Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water
NTP Monograph: State of the Science Concerning Fluoride Exposure and Neurodevelopment and Cognition

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# What was the California Federal Court Ruling?

## What is it?

- A lawsuit filed by anti-fluoride advocates regarding the potential risks of fluoride in drinking water

## What do we need to know?

- The Court ruled in September 2024 that the Environmental Protection Agency (EPA) must review the United States' current guidelines to ensure levels do not pose an unreasonable risk of neurodevelopmental effects in children
- The EPA's current Maximum Contaminant Level (enforceable standard) is 4.0 mg/L, and the EPA's secondary standard (non-enforceable guideline) is 2.0 mg/L
  - Both are above Health Canada's Maximum Acceptable Concentration level of 1.5 mg/L
- The US Department of Health and Human Service's recommended optimal water fluoridation level is 0.7 mg/L (same as Health Canada)
- The ruling does not indicate that fluoride is harmful to public health at optimal levels
- The ruling does not specify the kind of action that should be taken by the EPA
- *U.S. Toxic Substances and Control Act* requires only an association (not causation) be demonstrated to be considered a potential hazard

Learn more:

US Environmental Protection Agency : Questions and Answers on Fluoride
Food & Water Watch, Inc et al. v Environmental Protection Agency et al.
U.S. Public Health Service Recommendation for Fluoride Concentration in Drinking Water for the Prevention of Dental Caries - PMC

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# What does current evidence show about excess fluoride and dental fluorosis?

**Dental fluorosis is a cosmetic issue** that affects the tooth enamel, leading to white flecks or brown pitting

- Mild and moderate dental fluorosis is not associated with any health or oral health concerns
- Current evidence indicates that repeat exposure to high concentrations of fluoride (above the maximum level of 1.5 mg/L) continues to be associated with an increased risk of moderate and severe dental fluorosis

Dental fluorosis is uncommon in Canada

- Canadian Health Measures Survey found only 16% of children have mild forms of fluorosis

**Evidence continues to show the benefits of water fluoridation still outweigh the small risk of mild dental fluorosis at the regulated fluoride level**

Learn more:

Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water

Canadian Health Measures Survey - Report on Oral Health Component

Expert Panel Meeting on the Health Effects of Fluoride in Drinking Water: Summary report

# What does current evidence show about excess fluoride and other health effects?

The 2024 Health Canada commissioned systematic review looked at more than 30 other health endpoints such as:

- Bone cancer, hip fracture, cancer, high blood pressure, heart attacks, diabetes, childhood obesity, thyroid function, and more

The review concluded that current evidence does not support an association or was insufficient to determine existence of a relationship between fluoride and additional health effects

**Evidence does not support a link between other adverse health effects and water fluoridated at optimal levels using current guidelines in Canada**

Learn more:
Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water

# CWF is cost-effective

Dental services are expensive

- In 2018, the cost of dental services was estimated to be approximately $17 billion in Canada, about $461 per Canadian

Several reports indicate **CWF yields a high return on investment**

- Canadian Agency for Drugs and Technologies in Health (CADTH) estimates 20-year savings of approximately $20.35 per dollar invested in CWF for continuing fluoride in a large urban municipality in Canada

**Learn more:**
Community Water Fluoridation Programs: A Health Technology Assessment — Budget Impact Analysis. Ottawa: CADTH; 2019 Feb. (CADTH technology review; no. 13).

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# CADTH Budget Impact Analysis (2019)

*"In communities that are currently deciding whether to continue CWF,* ***CWF cessation was found to be more costly under a societal perspective compared with CWF continuation, even if this requires retrofitting existing CWF facilities.***

*Specifically, any cost savings from CWF cessation were found to be exhausted by the third year as medical, productivity loss, and transportation costs associated with increased caries incidence accumulated.* ***For a large urban municipality, CWF cessation would cost more than $110 million than continuing the status quo of fluoridating municipal waters****."*

Learn more:
Community Water Fluoridation Programs: A Health Technology Assessment — Budget Impact Analysis. Ottawa: CADTH; 2019 Feb. (CADTH technology review; no. 13).

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# Cautionary Tale of CWF Cessation in Calgary

City of Calgary ceased CWF in 2011 after the previous fluoride infrastructure reached the end of its lifecycle and was decommissioned and removed. At the same time, CWF continued in Edmonton

Multiple comparison studies between Calgary and Edmonton have shown:

- Fluoride cessation negatively impacted children's dental health in Calgary
- At least 25% more tooth decay was seen, with more burden in kids living in families with low-income
- Significant increase in dental cost and surgery under general anesthetic

**In light of these outcomes, and with public support, the City of Calgary is now working toward reintroducing fluoride to its water supply**

Learn more:
Fluoride in Calgary's water

# Key Takeaways

- Community water fluoridation improves oral health and supports the overall health of a community
- Community water fluoridation remains a safe, cost effective, and equitable public health practice and an important tool in protecting and maintaining the health and well-being of Nova Scotians
- Halifax Water can continue to create significant and lasting impacts in our communities through ongoing investment in CWF systems, creating generations of healthier residents

nova scotia health | Public Health

# Thank you!

We welcome any questions and discussion

Dr. Catherine Brown – Public Health
CatherineR.brown@nshealth.ca

Dr. Heather Dyment – IWK Dentistry
Heather.Dyment@iwk.nshealth.ca

# Additional Resources on CWF

**Government of Canada – Guidelines & Reports**

- Guidelines for Canadian Drinking Water Quality: Fluoride Guideline Technical Document
- Position statement on Community Water Fluoridation - Canada.ca
- State of Community Water Fluoridation across Canada
- Ethics Consultation Report - Ethical Considerations in Community Water Fluoridation
- Expert panel meeting on the health effects of fluoride in drinking water: Summary report - Canada.ca

**Government of Canada – Additional Resources on Oral Health & Fluoride**

- Fluoride and Oral Health - Canada.ca
- Oral health for adults - Canada.ca
- Oral health for children - Canada.ca
- Fact sheet - Community water fluoridation - Canada.ca

# Additional Resources on CWF

**Nova Scotia**

- Oral Health | Nova Scotia Health
- NS Treatment Standards for Municipal Drinking Water Systems

**Canadian Dental & Dental Hygienist Association**

- Canadian Dental Association – Position on Water Fluoridation
- CDHA Advocacy – Community Water Fluoridation
- Oral Health Reports – Nova Scotia Dental Association
- Understanding Fluoride – Nova Scotia Dental Association
- Canadian Dental Association – Your Oral Health

# Additional Resources on CWF

**International Organizations**

- World Health Organization - Fluoride in drinking-water
- Community Water Fluoridation Recommendations | Fluoridation | CDC
- Community Water Fluoridation Frequently Asked Questions | Fluoridation | CDC
- Cavities: Community Water Fluoridation | The Community Guide

**CADTH & CIHI Reports**

- Community Water Fluoridation Programs: A Health Technology Assessment — Budget Impact Analysis. Ottawa: CADTH; 2019 Feb. (CADTH technology review; no. 13).
- Treatment of Preventable Dental Cavities in Preschoolers: A Focus on Day Surgery Under General Anesthesia

# Key Research Studies on CWF

**Key Technical Reports and Systematic Reviews**

- Taher, M. K., Momoli, F., Go, J., Hagiwara, S., Ramoju, S., Hu, X., … Krewski, D. (2024). Systematic review of epidemiological and toxicological evidence on health effects of fluoride in drinking water. *Critical Reviews in Toxicology*, *54*(1), 2–34. Available at: https://doi.org/10.1080/10408444.2023.2295338
- Health Canada (2024). Expert panel meeting on the health effects of fluoride in drinking water: Summary report. Available at: https://publications.gc.ca/collections/collection_2024/sc-hc/H144-120-2024-eng.pdf
- National Toxicology Program. (2024). NTP monograph on the state of the science concerning fluoride exposure and neurodevelopment and cognition: A systematic review. NTP Monograph (8). Available at: https://ntp.niehs.nih.gov/publications/monographs/mgraph08

# Key Research Studies on CWF

**Cessation of CWF in Calgary Alberta**


- McLaren L, Patterson S, Thawer S, Faris P, McNeil D, Potestio M, Shwart L. (2016). Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices. *Community Dent Oral Epidemiol.* 44: 274–282. Available at: https://doi.org/10.1111/cdoe.12215
- McLaren L, Patterson S, Thawer S, Faris P, McNeil D, Potestio M. (2017). Fluoridation cessation: More science from Alberta. *Community Dent Oral Epidemiol.* 45: 503–505. Available at: https://doi.org/10.1111/cdoe.12346
- McLaren L, Patterson SK, Faris P, et al. (2022). Fluoridation cessation and children's dental caries: A 7-year follow-up evaluation of Grade 2 school children in Calgary and Edmonton, Canada. *Community Dent Oral Epidemiol.* 50: 391–403. Available at: https://doi.org/10.1111/cdoe.12685
- McLaren, L., Patterson, S.K., Faris, P., et al. (2022). Fluoridation cessation and oral health equity: a 7-year post-cessation study of Grade 2 schoolchildren in Alberta, Canada. *Can J Public Health* 113, 955–968. Available at: https://doi.org/10.17269/s41997-022-00654-4
- Yazdanbakhsh, E., Bohlouli, B., Patterson, S. et al. (2024). Community water fluoride cessation and rate of caries-related pediatric dental treatments under general anesthesia in Alberta, Canada. *Can J Public Health* **115**, 305–314. Available at: https://doi.org/10.17269/s41997-024-00858-w

# Fluoride and Community Water Fluoridation

These Frequently Asked Questions help to address common concerns and questions regarding fluoride and community water fluoridation in Nova Scotia.

**Why is oral health important?**
Oral health is important to overall health and well-being at every age and stage of life. A healthy mouth allows a person to eat, speak, learn and socialize without discomfort or embarrassment.

Tooth decay is the most common childhood chronic disease in Canada that can be prevented. 57% of Canadian children have cavities, which can lead to unnecessary infection, pain, and tooth loss. This can impact children's growth and development, behaviour, and ability to learn, socialize and play.

**What is fluoride?**
Fluoride is a mineral that strengthens teeth, making them more resistant to decay. Fluoride is naturally occurring in water, soil, plants and food, and is added to various dental products.

**How does fluoride prevent tooth decay?**
Fluoride can prevent tooth decay in two ways:

- When fluoride in drinking water is consumed it becomes part of the tooth's structure as it develops. Fluoride strengthens all layers of the tooth, creating stronger teeth for life.
- When teeth come in contact with fluoride in drinking water, the tooth enamel is strengthened on the surface. This type of fluoride protection is also available through dental products such as fluoride toothpaste and mouth rinse as well as fluoride treatments, such as fluoride varnish.

Evidence shows that receiving different types of fluoride is safe and offers the greatest benefits for oral health.

**What is water fluoridation?**
Almost all water contains some naturally occurring level of fluoride. Community water fluoridation is the process of adjusting that amount of fluoride in our drinking water to a level recommended for preventing cavities.

**What are the benefits of water fluoridation?**
Studies continue to show the importance of water fluoridation in preventing and reducing tooth decay. This is true even with improvements in access to dental care, personal dental practices and increased availability of fluoride through other sources, such as fluoride toothpaste.

While water fluoridation benefits everyone in a community, it is especially important for children and groups that experience higher rates of tooth decay and poorer oral health.

**Why does Nova Scotia Health Public Health support water fluoridation?**
Water fluoridation is one of the most effective public health measures that can be taken to reduce tooth decay because it reaches everyone in a community regardless of their age, income or access to dental care.

Nova Scotia Health (NSH) Public Health recommends community water fluoridation alongside more than 90 other provincial, national, and international professional organizations, associations and governments because it supported by evidence to be an important, safe, and effective measure to improve the oral health of Nova Scotians.

**Do all communities in Nova Scotia have access to water fluoridation?**
In 2022, about 50.4% of people in Nova Scotia had access to water with the recommended level of fluoride through a community water system. While all water contains some fluoride naturally, most water supplies in Nova Scotia do not have enough to help prevent tooth decay. Food is also not a major source of fluoride in Canada.

**What amount of fluoride in water is considered optimal for oral health?**
Health Canada recommends that communities fluoridate water to 0.7 milligrams per litre (mg/L) to achieve the benefits of cavity prevention. This level considers the other ways that people commonly receive fluoride, such as through fluoride toothpaste and treatments received at the dentist.

The level set for water fluoridation in Canada of 0.7mg/L is less than half the maximum level of 1.5mg/L that has been established by Health Canada and the World Health Organization.

**What about recent reports on water fluoridation and IQ in children?**
Recent reports have been published that look at fluoride levels above the maximum 1.5 mg/L and developmental outcomes in children, including IQ scores.

The evidence in the reports is not conclusive and do not show high fluoride causes lower IQs in children. In these studies, high fluoride levels are defined as greater than 1.5 mg/L, which is about double the standard for drinking water in Canada and Nova Scotia of 0.7 mg/L.

NSH Public Health continues to monitor ongoing scientific research on fluoride, community water fluoridation and health.

**What is dental fluorosis?**
Repeat exposure to high levels of fluoride (above the maximum level of 1.5 mg/L) has been shown to increase risk for dental fluorosis. Dental fluorosis is a cosmetic issue that affects the tooth enamel, and makes teeth appear to have white flecks or brown pitting.

Dental fluorosis is very uncommon in Canada and not a concern for most children. Some children have mild cases of fluorosis that often go unnoticed and present no long-term health problems.

**How do we know that the fluoride in drinking water in Nova Scotia municipalities remains below 1.5 mg/L?**
Municipalities that adjust the fluoride in drinking water are required to test their water supply daily to make sure recommended levels are maintained at 0.7 mg/L, or half the maximum level set by Health Canada of 1.5 mg/L.

**Why does NSH Public Health offer a school-based fluoride varnish program?**
High levels of early childhood cavities and limited of access to dental care are major concerns in our province.

School-based fluoride programs are offered in many areas across Canada because they are a safe and effective way to deliver additional topical fluoride to children to help prevent tooth decay. NSH Public Health offers a Fluoride Varnish Program in pre-primary to grade 6 students in select communities that would benefit most from an additional layer of protection.

School-based fluoride programs compliment other ways children receive fluoride, such as through their dental provider and water fluoridation. Children benefit from access to multiple sources and applications of fluoride and can safely receive up to six applications of fluoride varnish a year.

# Community Water Fluoridation

**Community water fluoridation is recommended as an important, safe and effective measure to improve the oral health of Nova Scotians.**

## The Facts

- **Oral health** is essential to overall health and well-being at every age and stage of life. A healthy mouth allows a person to eat, speak, learn and socialize without discomfort or embarrassment.
- **Tooth decay** is the most common chronic condition of childhood. It can lead to unnecessary pain or suffering, infection, tooth loss, or costly restorative treatment. In school-aged children, poor oral health outcomes are associated with lower school attendance and performance.
- **Populations** that experience the most tooth decay are also those who have the greatest difficulty accessing oral health care.
- **Fluoride** is a mineral that strengthens teeth, making them more resistant to decay. It is naturally occurring in water, soil, plants and food, and is added to various dental products.
- **Community water fluoridation** is the process of adjusting the amount of naturally occurring fluoride in drinking water supplies to achieve a level that is optimal for oral health.
- **Communities** with access to fluoridated water report lower rates of tooth decay.
- **NSH Public Health** recommends water fluoridation based on a collection of credible science, expert knowledge, and community experience.

## How It Works

Community water fluoridation delivers two kinds of fluoride protection against tooth decay:

1) **Topical**: when the outside of teeth come in direct contact with the fluoride in drinking water.
2) **Systemic**: when fluoridated water is consumed, fluoride is made available inside the body to become part of the tooth's structure while it is still developing.

Community water fluoridation is endorsed by more than 90 provincial, national and international professional organizations, associations and governments.

## NSH Public Health Supports Community Water Fluoridation

### 1 It is universal and accessible.

Community water fluoridation reaches everyone in a community regardless of their age, income or access to dental care services or supplies.

### 2 It improves oral health for everyone.

Community water fluoridation improves oral health outcomes across populations and age groups. It is especially beneficial for those that experience greater rates of tooth decay.

### 3 It is a preventative approach.

Community water fluoridation delivers fluoride protection to the entire community, helping to prevent tooth decay before treatment is required. Investing in prevention is beneficial for individuals, communities, and the health care system.

### 4 It is regulated and monitored.

Drinking water supplies are regularly tested to ensure that optimal fluoride levels are always maintained. This level is set by Health Canada and accounts for exposure to fluoride from other common sources.

### 5 It contributes to healthy, vibrant communities.

Improving oral health contributes to the overall health of a community. Community water fluoridation is part of creating places where people live, learn, work and play that support and promote health - now and into the future.

## Additional Resources

Nova Scotia Health - Oral Health | Nova Scotia Health (nshealth.ca)

Health Canada – Community Water Fluoridation

Public Health Agency of Canada – Position Statement on Community Water Fluoridation

Nova Scotia Dental Association – Understanding Fluoride

**Please contact your local Public Health office for more information.**

www.nshealth.ca/public-health

January 8, 2025

# Tooth Decay and Fluorides

Prepared by:
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## Background

Tooth decay is the most common chronic disease worldwide. It is an infectious disease caused by decay-causing bacteria. We are not born with these tooth decay-causing bacteria; rather, they are transmitted through the transfer of saliva. These bacteria produce acids using the sugars and starches present in the food. Acids damage teeth by eroding the protective enamel. Decay-causing bacteria is often transmitted from caregiver to child. The most common reason young children (1–4-year-olds) in Canada undergo day surgery under general anesthesia is to treat tooth decay.

Tooth decay affects everyone, but variably. More severe decay is experienced by those with lower levels of education and income, limited access to professional dental care, inadequate oral hygiene, and lack of community water fluoridation. Tooth decay is a significant burden to the health and quality of life of children, frail older persons, and people with disabilities.

Tooth decay causes pain and chewing difficulty. If not treated, decay progresses, leading to infection deep in the teeth, gums, and jaw; this condition often requires antibiotic treatment and extensive and costly dental treatment. People with extensive tooth decay often visit emergency departments, where dental treatment is not provided, but pain and infections are managed. Also, tooth decay can lead to low self-esteem, behavioural problems, challenges sleeping, interference with school and work attendance, and decreased school and work performance. In summary, tooth decay affects the growth and development of children.

Although tooth decay is largely preventable, it is widely experienced. According to the 2007-2009 Canadian Health Measures survey report[1]:

- 57% of 6-11-year-olds have or have had tooth decay
- 59% of 12-19-year-olds have or have had tooth decay
- The average number of teeth affected by tooth decay in children aged 6-19-years old is 2.5
- 96% of adults have or have had tooth decay

Access to dental care*

- 17% of Canadians avoided going to a dental professional in the past year because of the cost.
- 16% of Canadians avoided having the full range of recommended treatment due to the cost in the past year.
- 62% of Canadians have private dental insurance, 32% of Canadians do not have dental insurance, and 6% have public dental insurance (limited services)

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* *These statistics may change with the Canadian Dental Care Plan (CDCP); however, financial and non-financial barriers to care remain despite the new public insurance plan.*

Despite the newly implemented Canadian Dental Care Plan, inequalities in oral health status and access to care will persist, especially for those who are frail older and disabled persons, those living in long-term care facilities, and those who depend on a caregiver.

**Tooth decay burden and its prevention**

Tooth decay is an expensive disease not only because of treatment cost but also because of the productivity losses it causes (absenteeism – lost work and school days, lost wages) and emergency visits for non-traumatic dental problems. Each year, more than 40 million hours of productivity are lost in Canada because people miss work due to dental problems and treatment. This results in a potential loss of over $1 billion/year in productivity[2]. In Nova Scotia, dental cavities in young children are a big concern. Severe tooth decay can cause chronic mouth pain, difficulty eating and learning, and social vulnerability[3]. Hundreds of children visit the Halifax IWK emergency room yearly for nontraumatic dental problems and face substantial wait times for treatment – weeks to months. Approximately 30% of the IWK day's surgical time is spent treating tooth decay.

It should be noted that a filling in a permanent tooth is the start of a life-long saga of dental treatment. Each filling has a life of 10 to 12 years, then must be replaced. Over time, as fillings are replaced, the process becomes more complicated and can eventually lead to treatments like root canals, crowns, or even losing the tooth. These treatments can be costly over a person's lifetime.

Tooth decay can be prevented by reducing the intake of sugary foods and beverages, diet modification (reducing sugar and starch intake and frequency), maintaining adequate oral hygiene, and making the teeth more resistant to acid. However, making dietary modifications and maintaining adequate oral hygiene can be challenging, especially for those with low health literacy, low income, or those living in areas where healthy food choices are scarce. Therefore, making the teeth resistant to acid through fluoride use is one of the best possible options. Community water fluoridation benefits a large number of people and requires little effort from individuals[4].

**Fluoride**

Fluoride is a naturally occurring mineral that provides protection against tooth decay. If present during tooth formation (the first 8 years of life), fluoride is incorporated into tooth crystals to form a more acid-resistant enamel. Once the teeth are formed, fluoride strengthens the enamel by making the outer layer more resistant to acid in the mouth. Swallowed fluoride is absorbed and secreted in the saliva, providing a constant supply of fluoride (in small amounts) to the teeth, helping to protect against acid exposure and repair (remineralization).

**1. Community Water Fluoridation:**

Community water fluoridation is adjusting the naturally occurring fluoride concentration in drinking water to 0.7mg/L. This level effectively prevents tooth decay and is approximately half the acceptable concentration (1.5 mg/L) in Canada. Fluoride is a mineral, not a medication. Topping up the existing naturally occurring fluoride level to the recommended amount in water is similar to adding vitamin D to milk or iodine to salt. Community water fluoridation has been used in Canada and worldwide for almost 80 years[5]. It is the most effective, cost-saving intervention to prevent tooth decay. For every dollar invested in community water fluoridation,

$5 to $93 per person is saved in dental treatment costs[6], depending on the population size. The larger the population size, the lower the cost. For example, every dollar invested in fluoridating water for a community with 1000 or more people can save $20 in avoided dental and medical costs[7].

Community water fluoridation is the single most effective public health intervention to prevent tooth decay. Initial research in the 1960s demonstrated that community water fluoridation reduced tooth decay by 50–70% in permanent teeth[8]. Once the benefits of community water fluoridation were confirmed, fluoride was added to other products such as fluoride toothpaste, rinses, supplements, and fluoride gels and varnishes. Even with these fluoride products and professional fluoride applications, community water fluoridation can provide an additional 25% protection against tooth decay[9]. For many people, it is the only protection against tooth decay, especially for those who don't have access to fluoride products (like toothpaste, gels, or mouth rinses) or dental care—particularly children from low-income households, as well as disabled and frail older persons.

It is important to note that the people who benefit the most from community water fluoridation are those who face the greatest barriers to getting a healthy diet and dental care. They include low-income people, racial and ethnic minorities, people in underserved communities, persons living with disabilities, as well as young children and older persons who depend on others for care.

Many studies conducted over the last several decades confirm the benefits and safety of community water fluoridation. Below are some examples:

**Evidence of the benefits of community water fluoridation:**

a. A natural experiment in Canada: Stamm and colleagues (1990) compared decay in dental roots in older persons living in two cities in Ontario, Canada. Woodstock had 0.2 mg of fluoride, while Stratford had 1.6 mg of fluoride in its groundwater. The residents of both cities were similar except for the fluoride content in the water. Woodstock residents had 21% more decayed roots compared to the residents of the Stratford community [10].
b. Iowa (U.S) observation: Hunt and colleagues (1988) examined tooth decay in older persons (≥65 years) living in fluoridated and non-fluoridated areas of Iowa. Those living in fluoridated areas had significantly fewer decayed roots than those living in non-fluoridated areas[11], confirming that community water fluoridation protected people from root decay.
c. Calgary fluoridation cessation: The short-term (2 years) and long-term impacts (7 years) of stopping community water fluoridation were investigated when Calgary stopped community water fluoridation in 2011. Compared to children in Edmonton (which continued community water fluoridation), Calgary children had 16% more tooth decay, extractions due to decay, and fillings [12]. The higher decay rate occurred despite Calgary parents reporting that they did more of everything to reduce dental decay, such as using fluoridated toothpaste, taking their child to an oral health provider, and having a healthy diet rich in fruits and vegetables.
d. Calgary fluoridation cessation: Yazdanbakhsh and colleagues compared tooth decay-related dental treatments under general anesthesia for children under 12 years in Calgary (where community water was ceased in 2011) and Edmonton (where community water fluoridation continued) [13]. They found that the rates of tooth decay-related treatments in Edmonton stayed relatively constant but rose in Calgary, especially for children under 6 years.

e. Australia: Crocombe and colleagues (2015) investigated tooth decay among those born between 1960-1990 and lived in Australia. They reported that those who had a higher level of lifetime exposure to fluoride through community water fluoridation had less tooth decay [14].
f. Australia: Another study (2010) examined tooth decay in Australian children aged 5–15 years. Children living in areas where the water fluoride was less than 0.3mg had more tooth decay (34% in baby teeth and 27% in permanent teeth) than children living in optimally community water fluoridation areas (0.7 ppm)[15].

**Possible harms of community water fluoridation**

Fluorosis: Community water fluoridation contains only 0.7mg/L fluoride, less than one part of fluoride in a million parts of water. The risk of fluorosis from drinking fluoridated community water at a 0.7 mg/L fluoride level is rare. A mild form of fluorosis (white specks on the teeth) is suspected to be caused by children swallowing large amounts of fluoride toothpaste[16]. Even if fluorosis occurs, it is mild or very mild, with a slight change in appearance, such as white spots[17], a mere cosmetic condition with no effect on the structural integrity of the teeth. Very high fluoride levels in drinking water in China and India (up to 20 mg/L) have caused tooth and bone fluorosis, known as severe fluorosis.

**Misinformation about community water fluoridation**

Since the widespread adoption of community water fluoridation, numerous false and misleading claims about the practice have been circulated. These range from assertions that fluoride is a toxic poison linked to cancer to fears about its potential to lower IQ levels.

Some researchers claimed that community water fluoridation might be harmful, particularly in lowering IQ levels among preschool-age children. These claims are false because the studies upon which they are based are invalid[18]. First, the studies attempted to measure fetal fluoride exposure by measuring the pregnant woman's spot urine, which has been known since at least 2011 to be an invalid measure for assessing an individual's chronic fluoride exposure[19]. The measurement of IQ was also invalid because different raters were used in every city, and the authors provided no validation checks. There are also concerns about the way they analyzed their data. Hence, the claim that fluoridation affects IQ is without foundation.

No effect of IQ: Researchers examined the children born between 1972 and 1973 in New Zealand and followed 95% of them for 38 years. They found no difference in the IQ of people who lived in community water fluoridated areas and non-community water fluoridated areas, regardless of whether they used fluoride toothpaste or took fluoride tablets (before 5 years of age)[20].

The concentrated fluoride that is diluted into water supplies is potentially dangerous, and like other chemicals such as chlorine, must be handled with caution by trained operators. The equipment used is designed with various fail-safe systems, and the concentration in the water is tested multiple times a day to ensure its safety. Some opponents assert that the fluoride used is an industrial chemical that is a waste product of fertilizer production. It is better understood as a 'by-product,' and its origin is irrelevant to safety: this convenient source of fluoride does not have contaminants that are of any importance when the fluoride is diluted to less than one part in a million parts of water.

Community water fluoridation is endorsed by a wide range of respected national and international health organizations, including the World Health Organization (WHO), World

Dental Federation (FDI), U.S. Centers for Disease Control and Prevention (CDC), American Medical Association (AMA), American Dental Association (ADA) the Canadian Medical Association (CMA), Canadian Dental Association (CDA), the Canadian Cancer Society, and Nova Scotia Dental Association (NSDA).

In summary, community water fluoridation is a safe, cost-saving, cost-effective, and equitable intervention to prevent tooth decay. It reaches every household irrespective of socioeconomic status. To benefit, people need only to drink tap water. The U.S. Centre for Disease Control (CDC) considers community water fluoridation as one of the ten great public health achievements of the 20th Century.

**2. Fluoride Toothpastes:**

Most toothpastes in Canada contain fluoride. In over-the-counter fluoride toothpaste, fluoride concentrations vary from 1000-1500 ppm[21]. Maximum protection from toothpaste comes when teeth are brushed twice a day using toothpaste with a fluoride content of 1000 ppm or above[22].

The amount of toothpaste matters. Children under 3 years of age should use an amount equivalent to a grain of rice, while those aged 3 years and older should use the size of a pea. Using more than these amounts does not provide greater protection. Children should be supervised while brushing with fluoride toothpaste to prevent swallowing.

Brushing with fluoride toothpaste causes a transient increase in fluoride concentration in saliva, which can enhance remineralization of teeth surfaces. Fluoride is taken directly into dental plaque and demineralized enamel. The fluoride concentration in saliva returns to baseline levels within 1 to 2 hours of brushing with fluoride toothpaste. Therefore, the protection that they offer is only partial. Furthermore, their effect is limited because individuals' compliance is required, given that toothpaste must be purchased (cost) and used regularly. Caregivers' brushing of teeth with fluoridated toothpaste is critical for young children and disabled and frail older persons who depend on caregivers. Often, caregivers are overwhelmed and do not provide tooth brushing.

**3. Fluoride Rinses:**

Fluoride rinses are effective in preventing tooth decay in both children and older persons[23]. They should be used for at-risk individuals based on the level of tooth decay risk. They contain higher fluoride content; therefore, they should not be swallowed. They are not recommended for children under 6 years of age[24] and people with swallowing difficulties.

**4. Fluoride Varnishes and Gels:**

Fluoride varnishes and gels are professionally applied by dental professionals. Varnishes provide 37-43% prevention[25] while gels provide 26-28% protection against tooth decay if applied at least twice a year[26]. More frequent applications are required when the risk of tooth decay is greater.

While fluoride applications are important, they are additional preventive measures for preventing tooth decay, in addition to community water fluoridation. They are more expensive than water fluoridation and require people to have access to dental care services. Therefore, people who have no access to dental care services will not receive this protection (e.g., long-term care residents, those who have no dental benefits or are underinsured and cannot pay out of pocket for dental services).

**Conclusion:**

Community water fluoridation is a valuable method of helping communities to care for everyone, especially the most disadvantaged people in the community. Fluoridation provides a great benefit that lasts life-long, so the benefits of better oral health and significant cost savings are likely greater than estimated in short-term studies.

**References**

1. Health Canada. Canadian Health Measure Survey (CHMS) [Available at https://www.canada.ca/en/health-canada/services/healthy-living/reports-publications/oral-health/canadian-health-measures-survey.html Accessed on January 5, 2025].
2. Hayes A, et al. Time loss due to dental problems and treatment in the Canadian population: analysis of a nationwide cross-sectional survey. BMC Oral Health. 2013;13:17.
3. Pellegrom J, et al. Social Vulnerability Index and Dental Caries in Children: An Exploratory Study. JDR Clin Trans Res. 2024:23800844241279566.
4. Hachey S, et al. Strengthening the approach to oral health policy and practice in Canada. Paediatr Child Health. 2020;25(2):82-5.
5. Rabb-Waytowich D. Water fluoridation in Canada: past and present. J Can Dent Assoc. 2009;75(6):451-4.
6. Tchouaket E, et al. The economic value of Quebec's water fluoridation program. Z Gesundh Wiss. 2013;21(6):523-33.
7. O'Connell J, et al. Costs and aavings associated with community water fluoridation in the United States. Health Aff (Millwood). 2016;35(12):2224-32.
8. Centers for Disease Control and Prevention (CDC). Ten great public health achievements--United States, 1900-1999. MMWR Morb Mortal Wkly Rep. 1999;48(12):241-3.
9. Griffin SO, et al. Quantifying the diffused benefit from water fluoridation in the United States. Community Dent Oral Epidemiol. 2001;29(2):120-9.
10. Stamm JW, et al. Adult root caries survey of two similar communities with contrasting natural water fluoride levels. J Am Dent Assoc. 1990;120(2):143-9.
11. Hunt RJ, et al. Effect of residence in a fluoridated community on the incidence of coronal and root caries in an older adult population. J Public Health Dent. 1989;49(3):138-41.
12. McLaren L, et al. Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices. Community Dent Oral Epidemiol. 2016;44(3):274-82; McLaren L, et al. Fluoridation cessation and children's dental caries: A 7-year follow-up evaluation of Grade 2 schoolchildren in Calgary and Edmonton, Canada. Community Dent Oral Epidemiol. 2022;50(5):391-403.
13. Yazdanbakhsh E, et al. Community water fluoride cessation and rate of caries-related pediatric dental treatments under general anesthesia in Alberta, Canada. Can J Public Health. 2024;115(2):305-14.
14. Crocombe LA, et al. The effect of lifetime fluoridation exposure on dental caries experience of younger rural adults. Aust Dent J. 2015;60(1):30-7.
15. Armfield JM. Community effectiveness of public water fluoridation in reducing children's dental disease. Public Health Rep. 2010;125(5):655-64.
16. Association of State & Territorial Dental Directors. Best Practice Approaches for State and Community Oral Health Programs: Best Practice Approach Community Water Fluoridation

(Updated May 2016) [Available at https://www.astdd.org/bestpractices/BPAAccessWorkforce.pdf Accessed on Dec 12, 2024]. United States; June 16, 2003.
17. Singh KA, Spencer AJ. Relative effects of pre- and post-eruption water fluoride on caries experience by surface type of permanent first molars. Community Dent Oral Epidemiol. 2004;32(6):435-46.
18. Guichon JR, et al. Flawed MIREC fluoride and intelligence quotient publications: A failed attempt to undermine community water fluoridation. Community Dent Oral Epidemiol. 2024;52(4):365-74.
19. Rugg-Gunn AJ, et al. Contemporary biological markers of exposure to fluoride. Monogr Oral Sci. 2011;22:37-51.
20. Broadbent JM, et al. Community Water Fluoridation and Intelligence: Prospective Study in New Zealand. Am J Public Health. 2015;105(1):72-6.
21. Marinho VC, et al. Fluoride toothpastes for preventing dental caries in children and adolescents. Cochrane Database Syst Rev. 2003;2003(1):Cd002278.
22. Walsh T, et al. Fluoride toothpastes of different concentrations for preventing dental caries in children and adolescents. Cochrane Database Syst Rev. 2010(1):Cd007868.
23. Wyatt CC, MacEntee MI. Caries management for institutionalized elders using fluoride and chlorhexidine mouthrinses. Community Dent Oral Epidemiol. 2004;32(5):322-8; Ripa LW, et al. Supervised weekly rinsing with a 0.2% neutral NaF solution: results after 5 years. Community Dent Oral Epidemiol. 1983;11(1):1-6.
24. Canadian Dental Association. The State of Oral Health in Canada. [Avaialble at https://www.cda-adc.ca/stateoforalhealth/global/ Accessed on December 10, 2024].
25. Marinho VC, et al. Fluoride varnishes for preventing dental caries in children and adolescents. Cochrane Database Syst Rev. 2013;2013(7):Cd002279.
26. Marinho VC. Evidence-based effectiveness of topical fluorides. Adv Dent Res. 2008;20(1):3-7.

# ITEM #8

**Halifax Water Board**
**November 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**APPROVED:** Signed by: Kenda MacKenzie 8C884AC8815794F0...

Kenda MacKenzie, P.Eng., General Manager & CEO

**DATE:** **March 21, 2025**

**SUBJECT:** **Critical Goods and Services from US Companies and the Supply Chain Impact**

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## ORIGIN

In response to the US Tariffs imposed on most Canadian goods, steel and aluminum, Halifax Water Executive requested a summary report on the procurement of all critical goods and services from US companies and the supply chain impact.

This report summarizes the current procurement of critical items from the US and evaluates the potential impact of shifting the supply chain. Key factors considered include lead times, prices, minimum order quantities, and the impact of membership in various organizations.

## BACKGROUND

*See Background in HRM Item No. 21.4, Halifax Regional Council report, March 18, 2025, (Attachment A)*

- In January 2025 the US president signed an executive order to apply 25% tariffs on most Canadian goods and a 10% tariff on Canadian steel and aluminum.
- In response, the Government of Canada announced a scheduled implementation of reciprocal tariffs on selected US goods.
- The US later delayed the imposition of the tariffs by 30 days.
- Since the January announcement by the US president, several jurisdictions in Canada including the Province of Nova Scotia announced that they would explore options to eliminate or limit purchases of US goods and services.
- In February 2025, the US president announced that the 25% tariff on goods would be extended to include steel and aluminum.

## DISCUSSION

**Current Procurement from the US**

- **Operations**: Jerome Meters for odour control equipment.
- **Information & IS**: VMware, WaterISAC, Proofpoint, Microsoft, VEEAM, Solarwinds, and other software and equipment vendors.
- **Technical Services**: AMI - Itron, EXELE Information Systems, Rockwell Automation, Emerson Delta, OSIsoft LLC.
- **Fleet**: Ford/Chevrolet/Dodge for assorted fleet vehicles ($5.5M).
- **Strategic Projects**: Various vendors for valves, polymer systems, filter underdrain systems, and other equipment.
- **Environment Health and Safety**: Zero Water, Phytoxigene, Abraxis, Metals Samples, Analytical Services Inc., Aqua Realtime, Flow Cam, Water Research Federation
- **Corporate Services**: Memberships in Water ISACA, Gartner, American Water Works Association, and other organizations.

From April 1, 2024 to March 10, 2025, Halifax Water spent approximately $165M for goods, services, and construction. $70M (42%) of those purchases were from Nova Scotia companies. Additionally, over 97% of the total purchases were from suppliers with a Canada address.

| | |
|---|---|
| HRM (the Municipality) | 12,069,564 |
| NS Power | 10,309,784 |
| Halifax and rest of Nova Scotia | 70,622,598 |
| Rest of Canada | 67,038,148 |
| USA (paid in US$) | 4,492,898 |
| International | 236,980 |
| Total | 164,769,974 |

**Halifax Water Procurement Policy Context**

Halifax Water's Procurement Policy, aligned with trade treaties, does not mandate comprehensive tracking the source of goods and services, except for avoiding procurement from sanctioned nations. Halifax Water's ability to confirm US content in its current supply chain is restricted.

**Evaluating Place of Manufacture via Weighted Scoring**

Halifax Water will explore introducing a weighted evaluation of Canadian or non-US content in bid submissions, ensuring HW is compliant with the threshold amounts of CETA and Canada-UK.

Although this approach might support economic growth and supply chain stability, it may complicate the bidding process.

**Language in Solicitation Documents and Contracts**
Halifax Water will consider additional language in the solicitation documents and contracts with respect to tariffs, to reflect the right to table tariffs as an item for negotiation with the top-ranked proponent.

Assuming that any global tariffs currently in place as of the submission deadline will be incorporated in the Financial Submission.

## BUDGET IMPLICATIONS

Changes to the current procurement methods, cancelling contracts, sourcing products from non-US companies, and purchasing goods produced outside of the US will all have an impact on the costs to Halifax Water.

## RISK

Shifting the supply chain for critical items from the US presents several challenges, including increased lead times, higher costs, and higher minimum order quantities. These changes could significantly impact operational efficiency and financial performance. Additionally, losing memberships in key organizations could reduce access to important resources and industry connections. Halifax Water may also face challenges in sourcing specialized products, such as treatment chemicals, software, equipment at treatment facilities and services that are predominately available from US providers directly or from US providers through Canadian based distributers. This could potentially impact operational efficiency. Careful consideration and strategic planning are essential to mitigate these risks and ensure a smooth transition.

## ALTERNATIVES

None

## ATTACHMENTS

1. Attachment A Halifax Regional Municipalities Item No. 21.4, Halifax Regional Council, March 18, 2025, Options for Eliminating or Limiting US Goods and Services in HRM Supply Chain

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**Item No. 21.4**
**Halifax Regional Council**
**March 18, 2025**

**TO:** Mayor Fillmore and Members of Halifax Regional Council

**FROM:** Cathie O'Toole, Chief Administrative Officer

**DATE:** February 18, 2025

**SUBJECT:** Options for Eliminating or Limiting US Goods and Services in HRM Supply Chain

## INFORMATION REPORT

## ORIGIN

On Tuesday February 4, 2025 Halifax Regional Council approved a motion by Councillor Cleary and seconded by Councillor Kent:

*"Halifax Regional Council direct the Chief Administrative Officer to provide an expedited staff report looking at all legal and practical ways to limit or eliminate procurement from US companies, as well as any goods or services originating in the USA."*

## EXECUTIVE SUMMARY

This staff report aims to provide a holistic view of the procurement landscape, offering informed paths to prioritizing non-US manufacturing within HRM's operations while considering economic and regulatory contexts.

## BACKGROUND

- In January 2025 the US president signed an executive order to apply 25% tariffs on most Canadian goods and a 10% tariff on Canadian steel and aluminum.
- In response, the Government of Canada announced a scheduled implementation of reciprocal tariffs on selected US goods.
- The US later delayed the imposition of the tariffs by 30 days.
- Since the January announcement by the US president, several jurisdictions in Canada including the Province of Nova Scotia announced that they would explore options to eliminate or limit purchases of US goods and services.
- On February 4, 2025, Halifax Regional Council directed the CAO to provide an expedited staff report looking at all legal and practical ways to limit or eliminate procurement from US companies, as well as any goods or services originating in the USA
- In February 2025, the US president announced that the 25% tariff on goods would be extended to include steel and aluminum.

## DISCUSSION

### Background on North American Supply Chain Integration

The manufacturing landscape in North America exhibits significant integration, highlighted by multinational componentry across products and frequent cross-border flows. Canadian Auto Workers' insights show that auto parts can cross North American borders up to eight times before reaching final assembly. This complexity is integral to understanding HRM's procurement dynamics.

### HRM's Manufacturing and Fleet Sources

HRM heavily relies on Canadian-based manufacturers for essential fleets:

- Bus Suppliers: New Flyer (Manitoba) and Nova Bus (Quebec, part of Volvo).
- Fire Apparatus Suppliers: Techno Feu (Quebec) and Fort Garry Fire Trucks (Manitoba).

Despite these Canadian connections, the supply chain's complexity includes inputs from the US, Mexico, the EU, and Asia, complicating the tracking and exclusion of US-origin goods.

### HRM's Direct Contracts with US Suppliers

Although most of HRM's supply chain resides in Canada, there are specific items that HRM purchases directly from US suppliers. The primary of these are:

- Bus Parts: Mohawk Manufacturing and Supply
- Streetlight Management: Itron Networked Solutions

Other items that are purchased from US-based companies including Microsoft, Hewlitt Packard, Dell and Apple are purchased in Canada from Canadian subsidiaries or local distribution networks.

HRM's financial and HR solutions are supplied by SAP, a multi-national company based in Germany. SAP's financial solution is purchased from the Province of Nova Scotia and hosted and managed locally by IBM Canada.

### HRM Procurement Policy Context

Current HRM policies, aligned with trade treaties, do not mandate comprehensive tracking of goods' source origins, except for avoiding procurement from sanctioned nations. This hampers HRM's ability to confirm US content in its current supply chain.

HRM's current contracts have never considered US-content in its supply chain. It would be extremely challenging to change these contracts to favour non-US supplies and would in many cases result in price increases beyond HRM's ability to avoid retendering.

### HRM Supply Chain Financial Context

From April 1, 2024, to January 31, 2025, HRM spent approximately $455M. for goods, services, and construction. $339M (74%) of those purchases were from Nova Scotia companies. Additionally, over 99% of the total purchases were from suppliers with a Canadian address. Attachment A contextualizes HRM's substantial procurement activities, including payments for ongoing operational services.

**Implications of Trade Agreements and Provincial Legislation**
Administrative Order 2022-012-ADM (the Procurement Policy) requires compliance with the trade agreements by which public entities are regulated, including:

- The Canada Free Trade Agreement (CFTA)
- The Canada/EU Comprehensive Economic and Trade Agreement (CETA)
- The Canada-UK Trade Continuity Agreement

The objective of these agreements is to enforce fairness in procurement, particularly over threshold values (e.g. CETA's at $8,800,000 for construction and $353,300 for goods and services). While the trade agreements do not prohibit Canadian preferences below applicable thresholds, they do restrict national, provincial or local preferences on purchases exceeding these thresholds. Any changes to HRM's procurement practices must comply with these trade agreements.

HRM is also subject to Nova Scotia's Public Procurement Act. As a result, any actions taken by HRM could be influenced by the decisions and/or direction of the Province of Nova Scotia.

**Considerations on Eliminating US Goods**
Excluding US goods is permissible under HRM policies and agreements, but is potentially detrimental to local economies, impacting costs and supply chain efficiencies. The entrenchment of US products within local and distributor supply chains means drastic exclusion could disrupt market dynamics and potentially harm local suppliers. For this reason, the elimination of US goods from HRM's supply chain, while permissible, may not be practical.

To remove HRM's purchase of goods directly from the US under existing agreements would require HRM to terminate those agreements. Depending on the terms of those agreements, HRM may be liable to pay certain amounts as a result of the termination. While it is rare for these costs to exceed the value of the agreement, there may be penalties or other costs or fees that HRM may incur. These costs would be in addition to the costs and expenses incurred by HRM in reprocuring these goods from Canadian (or other jurisdictions) and, as set forth above, the new goods may be more expensive to HRM.

**Evaluating Place of Manufacture via Weighted Scoring**
For new or upcoming procurements, HRM will explore introducing a weighted evaluation of Canadian or non-US content in bids. This presents potential operational and economic gains, although it might complicate bid processes due to the volume of items involved. Balancing such considerations may encourage sustainability, local support, and robust supply chains, notwithstanding the usual primary focus on price and social value.

**Benefits of Prioritizing Place of Manufacture**
- Economic Growth: Supports Canadian and non-US industries, augments employment, and retains economic benefits domestically.
- Environmental Responsibility: Diminishes carbon footprints through shorter supply chains, aligning with sustainability goals.
- Supply Chain Resilience: In the current political environment, may enhance security against supply chain disruptions, ensuring continuity and stability in supply.

**Compliance and Implementation**
To remain compliant with trade regulations, HRM can use a scored criterion focused on Canadian content for purchases beneath CETA and Canada-UK thresholds or a non-US criterion irrespective of value.

## FINANCIAL IMPLICATIONS

Implementing a new procurement approach by HRM that limits or eliminates procurement from US companies and any goods or services originating in the USA could have significant financial implications. Such an approach may restrict access to established suppliers, potentially leading to significantly higher costs if alternative vendors from other countries or within Canada offer less competitive pricing or lack the same economies of scale.

## RISK CONSIDERATION

Shifting supply chains could result in increased logistical expenses, longer delivery times, and potential disruptions in service continuity. HRM might also face challenges in sourcing specialized products or services that are predominantly available from US providers directly or from US providers through to the Canadian-based affiliates, potentially impacting operational efficiency.

Existing contracts with US-based suppliers may require renegotiation or termination, potentially incurring legal or financial penalties.

Furthermore, local companies that source some components or raw materials from the US could be excluded from procurement competitions, reducing opportunities for local businesses and potentially undermining economic development efforts within the region. This exclusion could limit competition, restrict supplier diversity, and lead to higher procurement costs and budgetary strain for HRM.

## COMMUNITY ENGAGEMENT

No community engagement was required.

## LEGISLATIVE AUTHORITY

**Administrative Order 2022-012-ADM, The Procurement Administrative Order**,

Section 2 The purposes of this Administrative Order are to:
(a) provide for the procurement of Goods, Services and Construction by the Municipality in a fair, open, consistent and transparent manner resulting in Best Value;
(b) promote procurement processes and decisions that are consistent with the strategic goals and objectives of the Municipality;
(c) provide for sustainable procurement by integrating environmental, economic and social considerations in the procurement process;
(d) maintain ethical business practices;
(e) respect regional, national and international trade agreement obligations and other applicable legislation; and
(f) encourage competitive bidding for the supply of Goods, Services and Construction. .

Section 9 The CAO may authorize additional procedures and protocols not inconsistent with this Administrative Order and may delegate their authority under this Administrative Order to employees.

## ATTACHMENTS

Appendix A - HRM Supply Chain Profile
Appendix B - Statements from Premier Tim Houston, Mayor Andy Fillmore, Halifax Partnership

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Report Prepared by: Stephen-Robert Terry, Procurement, Finance & Asset Management, 902.802.4063

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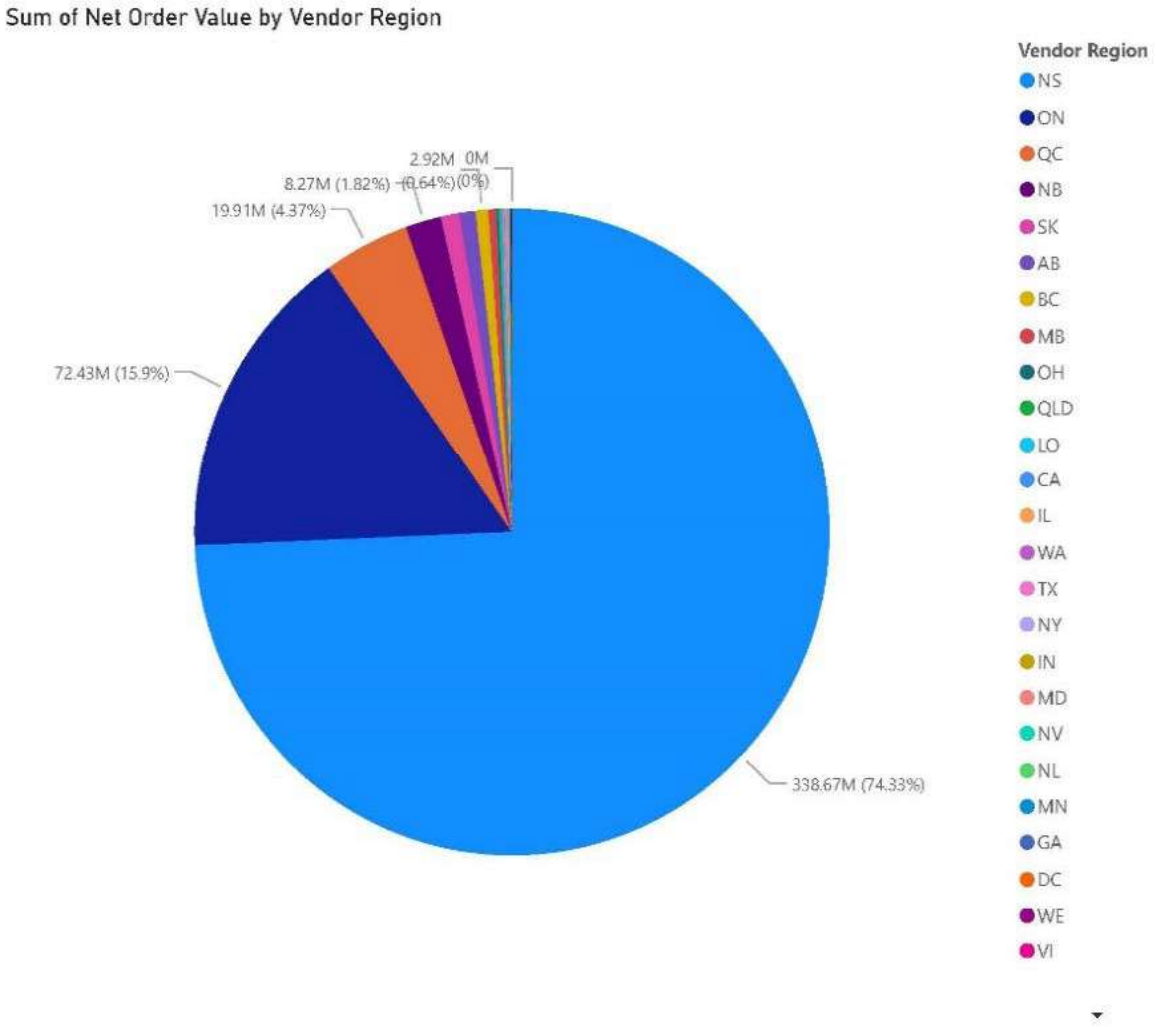
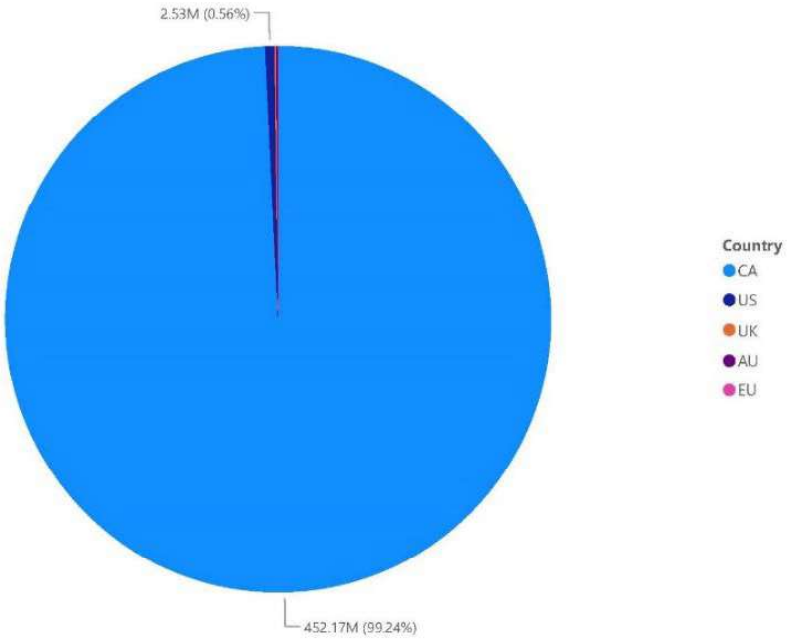
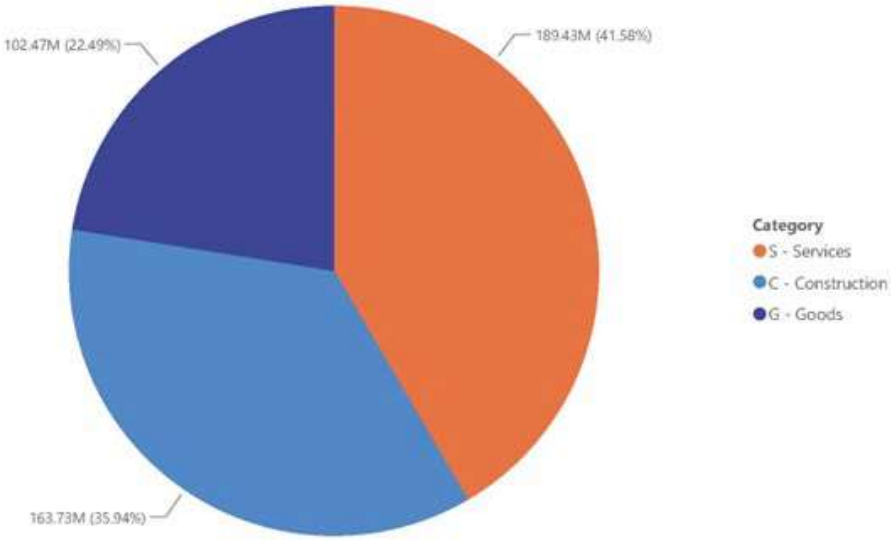

Sum of Net Order Value by Vendor Region
2.92M (0.64%)
0M (0%)
8.27M (1.82%)
19.91M (4.37%)
72.43M (15.9%)
338.67M (74.33%)
Vendor Region
NS
ON
QC
NB
SK
AB
BC
MB
OH
QLD
LO
CA
IL
WA
TX
NY
IN
MD
NV
NL
MN
GA
DC
WE
VI

Sum of Net Order Value by Country




Sum of Net Order Value by Category



**Attachment B – Official Statements from Premier Tim Houston, Mayor Andy Fillmore and the Halifax Partnership**

1. **<u>Province of Nova Scotia</u>**

PREMIER'S OFFICE--Statement on U.S. Tariffs
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NOTE: The following is a statement from Premier Tim Houston.

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Donald Trump is a short-sighted man who wields his power just for the sake of it, not having any consideration for the destructive impact of his decisions on both Canadians and Americans.

It is impossible to properly describe the uncertainty and chaos that President Trump's threat of tariffs and now actually imposing tariffs has caused for Canadians.

And now, as President Trump proceeds with his illegal 25 per cent tariffs, Nova Scotia will respond.

We will immediately limit access to provincial procurement for American businesses. They can no longer bid on provincial business. We are also actively seeking options to cancel existing contracts and reject bids outright until President Trump removes his unlawful tariffs.

We will double the cost of tolls at the Cobequid Pass for commercial vehicles from the United States, effective immediately.

And we will direct the Nova Scotia Liquor Corp. to once again remove all alcohol from the United States from their shelves, effective today. We know this was an effective response the first time and hurt American producers who rely on Canadian markets.

We will also take any step we can to support Nova Scotians through this incredibly difficult time. As part of Budget 2025-26, we added a contingency fund to respond to U.S. tariffs. It is too early to determine exactly what specific funding is necessary, but we will communicate to Nova Scotians as we better understand the economic impacts and the federal government's plans to support Nova Scotians.

We introduced legislation designed to break down barriers to interprovincial trade. We must be open for business in Canada. We hope all provinces and territories immediately endorse and pass corresponding legislation.

We are also working on a trade action plan to help businesses engage in global trade, increase their global competitiveness and drive investment growth and have issued a call to action to develop our valuable natural resources.

I can tell you that we worked hard to avoid a repeat of Trump's tax. We know tariffs are bad for

people and businesses on both sides of the border.

Unfortunately, some people need to touch the hot stove to learn, and while we cannot control or predict their behaviour, we can control how we respond.

I want to thank Nova Scotians who have already responded with your wallet. You're choosing to be Nova Scotia loyal and support local and Canadian businesses. You're choosing to travel in our beautiful province and country rather than south of the border. You're cheering loudly and proudly for our Canadian teams and athletes.

These choices and actions are significant. It is important that we stand together, united and strong.

That's why we will continue to work with the federal government as it designs and implements counter-tariffs.

We are a government of action, and I continue to stand with you. My focus is entirely on protecting the interest of hard-working Nova Scotians and their families – in these times of uncertainty, that is one constant you can continue to count on.

2. **Halifax Regional Municipality**

Statement from the Mayor of Halifax on U.S. Tariffs

March 4, 2025

As a municipality, we are immediately reviewing all procurement policies to align with the Province of Nova Scotia's response. We remain in active dialogue with the Premier's office to ensure continued alignment.

Halifax will be canceling memberships in U.S.-based organizations and suspending all employee travel to the United States for conferences and training. We are also reviewing existing agreements and identifying potential off-ramps where possible.

City staff are preparing a report for Council outlining the implications of these tariffs and potential further municipal actions. This report will be presented as early as the next Council meeting on March 18.

Haligonians are already making their voices heard through their purchasing choices, travel decisions, and support for local businesses. I encourage all residents to continue standing together in this difficult time by prioritizing local and Canadian products and services.

Andy Fillmore

Mayor of Halifax

3. **Halifax Partnership**

Halifax Partnership: Navigating U.S. Tariff Impacts. Together.

After a 30-day pause, the United States administration has decided to proceed with imposing 25 percent tariffs on Canadian exports and 10 percent tariffs on Canadian energy. In response, Canada will impose 25 percent tariffs against $155 billion of American goods – starting with tariffs on $30 billion worth of goods immediately and tariffs on the remaining $125 billion on American products in 21 days' time. The Province of Nova Scotia has also announced a number of immediate countermeasures, including changes to provincial procurement processes and the removal of all American alcohol products from the shelves of Nova Scotia Liquor Corporation stores.

We're staying focused on the core of what we do at Halifax Partnership – helping to grow our local economy in ways that benefit all residents and businesses. We do this by working together and fostering collaboration, and it has been heartening to see Canadians and Nova Scotians coming together and resolved to meet this challenge head on.

We're here to help

Halifax Partnership is here to help your business navigate the Canada-U.S. trade dispute and mitigate economic impacts. Our SmartBusiness team can connect you to partners and resources for trade market development, supply chain diversification, and generally increasing the competitiveness of your business. We're already receiving requests from companies outside of Nova Scotia who want to diversify their supply chains and source materials, products, and services. We're thrilled to connect them directly to businesses here in Halifax, while collaborating with our network to open new doors. Reach out to our team and share your tariff impacts with us.

As we look ahead, we are faced with tremendous uncertainty as we size up the economic impacts of tariffs between Canada and the US, as well as unpredictable international relations and shifting trade dynamics. We remain forward-thinking and deliberately focused on Halifax's economic development and, now more than ever, solving Nova Scotia's productivity crisis is key to strengthening our economy.

What happens next

This tariff situation is fast-moving, and we can expect changes that will affect us all. We'll be actively monitoring and will continue to work closely with governments, partners, and businesses to share information on how any developments will affect our economy and our community, and the ways we can respond effectively, together.

# ITEM #1-I

**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: A65D6874EBC1467... Louis de Montbrun, CPA, CA, Director of Corporate Services/CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F6... Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 19, 2025

**SUBJECT:** Halifax Regional Water Commission Employees' Pension Plan – Unaudited Results for the year ended December 31, 2024

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## ORIGIN

Financial information reporting.

## BACKGROUND

At the March 6, 2025, meeting of the Halifax Water Audit and Finance Committee, the attached Halifax Regional Water Commission Employees' Pension Plan – Unaudited Results for the year ended December 31, 2024, report was reviewed and discussed. The Committee approved forwarding the report to the Halifax Water Board as the Trustee of the Plan for their information.

## DISCUSSION

No additional information was requested to be brought forward to the Halifax Water Board meeting following the discussion of the attached at the Committee meeting.

## ATTACHMENT

1. Item 6 - Halifax Regional Water Commission Employees' Pension Plan Unaudited Results for the Year Ended December 31, 2024, dated February 20, 2025.

**ITEM #6**
**Audit and Finance Committee**
**March 6, 2025**

**TO:** Chair and Members of the Halifax Regional Water Commission Audit and Finance Committee

**SUBMITTED BY:** Signed by: A65D6074EBC1407...
Louis de Montbrun, CPA, CA, Director, Corporate Services / CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815704F6...
Kenda MacKenzie, P.Eng., General Manager/CEO

**DATE:** February 20, 2025

**SUBJECT:** **Halifax Regional Water Commission Employees' Pension Plan Unaudited Results for the Year Ended December 31, 2024**

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## ORIGIN

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

## RECOMMENDATION

It is recommended that the Audit and Finance Committee accept the financial report for the Halifax Regional Water Commission Employees' Pension Plan for the year ended December 31, 2024, and forward the report to the Halifax Water Board as the Trustee of the Plan as an information report.

## BACKGROUND

The Audit and Finance Committee is required to review the financial results of the Plan throughout the year.

## DISCUSSION

The attached statement of changes in net assets available for benefits (Appendix A) outlines the annual budget for the Plan and unaudited financial results for the twelve-month period ending December 31, 2024. Audited financial results for 2022 and 2023 are shown for comparative purposes.

As shown on the statement of changes in net assets available for benefits, net assets available for benefits have increased by $27.5 million for the year. Unaudited results for the year compared to the budget result in, a favourable variance of $16.2 million.

The annual budget forecasted revenue of $10.5 million. Revenue for the year is $27.5 million, a favourable variance of $17.0 million. Revenue figures are directly impacted by the performance of the HRM Master Trust. This favourable variance is attributed directly to an increase in the fair value of investment assets of $23.3 million. Investment income for the year is $4.7 million compared to an annual budget of $2.8 million resulting in a favourable variance of $1.9 million.

Contributions of $8.3 million are above the annual budget of $7.7 million by $0.67 million. This results in a favourable variance of 9% and is due to the timing of new hires, retroactive contributions as a result of the settlement of union contracts, and reciprocal transfers into Halifax Water, which are unbudgeted.

Expenses of $8.3 million for the period are higher than the annual budget of $6.8 million by $1.5 million. The main contributor to this variance is termination payouts which are higher than the annual budget in the period. Termination payments do vary from quarter to quarter and are difficult to predict, however, the years termination payouts have exceeded the annual budget by $1.5 million.

## SERVICE STANDARDS

Tracking of Regulatory Filing Requirements, Administrative Reporting Requirements and Service Standards for actuarial calculation requests is ongoing. The reports for Regulatory Filing Requirements and Administrative Reporting Requirements are attached as Appendix B and Appendix C respectively, and document administrative compliance within the various levels of reporting for the period.

Service Standard results for the Fourth Quarter (October 1 – December 31, 2024) have been attached as Appendix D. The primary purpose of the service standard report is to report on the administrative compliance with the Pension Benefits Act of Nova Scotia (the “Act”) respecting the timing of statements or notifications required under the Act, such as:

- Retirement statement to member;
- Notification of options to retiring member;
- Death benefits statement; and
- Statement on termination.

A secondary purpose of the report is to provide performance reporting respecting the Plan's actuaries, for required deliverables based on pre-determined standards. These standards are internal in nature, and mutually agreed upon by the actuary and Halifax Water.

Fourth Quarter results reported in Appendix D show, out of 3 requests submitted for retirement estimates (with options), the retirement package was provided to the member within the prescribed timelines under the Act, 60 days prior to the Member's intended retirement date. There were 5 terminations during the period, with the terminated employee provided a termination package (with options) within the prescribed timelines under the Act, within 60 days after their termination date.

Performance of the actuary, also reported in Appendix D, shows out of 8 requests in total, the actuary met the pre-determined standard in all instances, with average response times for retirement and termination calculation estimates of 6 days and 5 days respectively. The response time of the actuaries is continuously monitored to ensure required service standards are maintained. Halifax Water will be informed in advance of potential upcoming delays in response times.

**ATTACHMENTS**

APPENDIX A – Financial Report:
Statement of changes in net assets available for benefits, for the year ended December 31, 2024
APPENDIX B – Regulatory Filing Requirements Q4 2024
APPENDIX C – Administrative Reporting Requirements Q4 2024
APPENDIX D – Service Standards Report Q4 2024

Report Prepared By: Signed by: Heather Britten 7F50B0451C60405...
Heather Britten, Quality Assurance Manager

Financial Review By: Signed by: A65D0874EBC1487...
Louis de Montbrun, Director, Corporate Services/CFO

**Halifax Regional Water Commission Employees' Pension Plan**
**Statement of changes in net assets available for benefits**
**For the year ended December 31, 2024**

| | December 31, 2024 | | | | | |
|---|---|---|---|---|---|---|
| | | | Actual versus Budget Change | | Actual (Audited) | Actual (Audited) |
| | 2024 Budget | Actual | $ | % | 2023 | 2022 |
| **Revenue** | | | | | | |
| Net investment income: | | | | | | |
| Total investment income | **$2,800,000** | $4,736,825 | $1,936,825 | 69% | $3,640,508 | $3,307,029 |
| Investment manager fees | **($430,000)** | ($537,242) | ($107,242) | 25% | ($383,410) | ($388,167) |
| Increase (decrease) in the fair value of investment assets | **$8,100,000** | $23,278,287 | $15,178,287 | 187% | $11,981,675 | ($2,763,692) |
| | **$10,470,000** | **$27,477,869** | $17,007,869 | **162%** | $15,238,773 | $155,170 |
| **Contributions** | | | | | | |
| Participants: | | | | | | |
| Current service (including Additional Voluntary Contributions) | **$3,890,416** | $4,205,160 | $314,744 | 8% | $3,701,095 | $3,375,425 |
| Reciprocal Transfers | **$0** | $49,611 | $49,611 | 0% | $683,465 | $0 |
| Sponsors: | | | | | | |
| Current service | **$3,773,000** | $4,080,859 | $307,859 | 8% | $3,588,545 | $3,277,595 |
| | **$7,663,416** | **$8,335,629** | $672,213 | **9%** | $7,973,105 | $6,653,020 |
| **Expenses** | | | | | | |
| Benefit payments: | | | | | | |
| Benefit payments | **$5,536,000** | $5,595,412 | $59,412 | 1% | $5,280,758 | $5,089,704 |
| Termination payments | **$1,000,000** | $2,479,967 | $1,479,967 | 148% | $1,470,618 | $909,506 |
| Death benefit payments (pre-retirement) | **$0** | $0 | $0 | n/a | $296,728 | $0 |
| Administrative: | | | | | | |
| Actuarial & consulting fees | **$143,500** | $87,061 | ($56,439) | (39%) | $77,631 | $99,522 |
| Audit & accounting fees | **$9,000** | $11,555 | $2,555 | 28% | $9,022 | $9,446 |
| Bank custodian fees | **$26,300** | $31,331 | $5,031 | 19% | $24,509 | $20,941 |
| Insurance | **$10,600** | $11,130 | $530 | 5% | $11,130 | $10,600 |
| Miscellaneous | **$21,200** | $22,510 | $1,310 | 6% | $25,170 | $21,448 |
| Professional fees | **$44,000** | $38,906 | ($5,094) | (12%) | $44,484 | $40,534 |
| Registration fees | **$3,000** | $3,178 | $178 | 6% | $2,935 | $2,848 |
| Training (Trustees/ Administration/ Pension Committee) | **$5,000** | $0 | ($5,000) | (100%) | $0 | $0 |
| | **$6,798,600** | **$8,281,051** | $1,482,451 | **22%** | $7,242,985 | $6,204,549 |
| **Increase in net assets available for benefits** | **$11,334,816** | **$27,532,448** | $16,197,632 | **143%** | $15,968,893 | $603,641 |
| **Net assets available for benefits, beginning of period** | **$191,208,896** | **$191,208,896** | | | **$175,240,003** | **$174,636,362** |
| Increase (decrease) in net assets available for benefits | **$11,334,816** | **$27,532,448** | | | **$15,968,893** | **$603,641** |
| **Net assets available for benefits, end of period** | **$202,543,712** | **$218,741,344** | | | **$191,208,896** | **$175,240,003** |

**Halifax Regional Water Commission Employees' Pension Plan**
**Regulatory Filing Requirements - 2024**
**as at December 31, 2024**

| | Report | Regulatory Body | Filing Deadline | Date last filed | | Comments |
|---|---|---|---|---|---|---|
| 1 | Annual Form 3 - Summary of Contributions | Superintendent of Pensions | 60 days after the beginning of each fiscal year | February 18, 2025 | DB Plan | Filed directly with the Trustee, Northern Trust, for the DB Plan. |
| | | | | February 18, 2025 | DC Plan | Filed directly with the Trustee, Industrial Alliance, for the DC Plan. |
| 2 | Pension Plan Income Tax Return (T3) | Canada Revenue Agency | March 31st | February 16, 2024 | DB Plan | CRA requires Northern Trust as the custodian to prepare and file T3 Income Tax Returns each year. Information obtained from HRM Pension Plan office. |
| 3 | Pension Plan Audited Financial Statements | Superintendent of Pensions | 6 months after the Plan's fiscal year end | July 23, 2024 | DB Plan | 2023 audited financial statements were approved by the Halifax Water Board on June 20, 2024. Financial statements were signed at Halifax Water's Annual General Meeting on July 11th and submitted to the Superintendent of Pensions on July 23rd. (Superintendent is notified by letter each year that the financial statements may be later than June 30th due to timing of the Board meeting and subsequent signing of the statements.) |
| | | | | June 19, 2024 | DC Plan | Audited financial statements are not prepared for this pension plan. However, Industrial Alliance provides a Financial Report detailing all pertinent details of the plan. This report is submitted to the regulatory body prior to June 30th each year. |
| 4 | Annual Information Returns (AIR) | Superintendent of Pensions | June 30th | June 19, 2024 | DB Plan | |
| | | | | June 19, 2024 | DC Plan | |
| 5 | Actuarial Valuation* | Superintendent of Pensions<br>Canada Revenue Agency | September 30th | September 16, 2022<br>September 16, 2022 | | Actuarial Valuation was conducted as of January 1, 2022 and has been filed with the Superintendent of Pensions and CRA in September 2022 by Eckler Partner's Ltd. The next Actuarial Valuation is to be conducted as of January 1, 2025. Data is now being compiled and prepared to send to Eckler. |
| 6 | Plan Amendments | Superintendent of Pensions<br>Canada Revenue Agency | 60 days after the amendment approved by the Board | September 23, 2022<br>September 23, 2022 | DB Plan | Plan Rules were Amended and Consolidated effective January 1, 2021 and approved by the Halifax Water Board on January 27, 2022. Contribution rate changes as determined by the Actuarial Valuation of January 1st, 2022 were submitted to the Superintendent of Pensions and CRA on September 23, 2022. |
| | | Superintendent of Pensions<br>Canada Revenue Agency | 60 days after the amendment approved by the Board | n/a | DC Plan | All documents relating to the registration of the DC Plan were received by the Superintendent October 6, 2017. |

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

**Halifax Regional Water Commission Employees' Pension Plan**
**Administrative Reporting Requirements - 2024**
**as at December 31, 2024**

| | Report | Filing Deadline/ Recurrence | Date last filed/ Performed | | Comments |
|---|---|---|---|---|---|
| 1 | Pensioners' Payroll | Monthly | February 1, 2025 | | Pensioners are paid the 1st of each month; no exceptions to report for the Fourth Quarter, 2024. |
| 2 | Contributions to the Trustee | Monthly | February 11, 2025 | DB Plan | Remittances due to Northern Trust within 30 days of month end; no exceptions to report for the Fourth Quarter 2024. |
| | | | January 15, 2025 | DC Plan | Remittances due to Industrial Alliance within 30 days of month end; no exceptions to report for the Fourth Quarter 2024. |
| | | | n/a | Notional Agreement* | Contributions are not made to an external trustee or custodian. Liability plus interest is recorded by Halifax Water annually on the corporate financial statements. |
| 3 | Pension Plan Financial Statements | Quarterly | March 6, 2025 | DB Plan | Fourth Quarter (January - December 2024) |
| | | | March 6, 2025 | | Quarterly statements are not prepared for the Defined Contribution (DC) Plan. A financial report is prepared by Industrial Alliance which is filed with the Annual Information Return (AIR) to the regulator. The 2024 report is being provided to the Halifax Water Audit and Finance Committee on March 6 and to the Halifax Water Board on March 27, 2025. |
| | | | n/a | Notional Agreement* | Financial statements not required. |
| 4 | Investment Performance Review & Compliance with SIP&P | Quarterly | January 16, 2025 | DB Plan | Third Quarter 2024 (January - September)<br>Report prepared quarterly by administration staff for the Halifax Water Board of Directors, in conjunction with the quarterly HRM Pension Plan Committee meeting documentation. Statement of Investment Policies & Procedures (SIP&P) is reviewed annually and was last reviewed and approved on December 12, 2024. |
| 5 | Annual Pension Statements to Members | June 30th | June 24, 2024 | DB Plan | Statements issued annually by June 30 |
| | | | June 24, 2024 | DC Plan | Statements issued annually in conjunction with the Defined Benefit (DB) Plan statements. Members also have access to online, real-time reporting. |
| | | | June 24, 2024 | Notional Agreement* | Statements issued annually in conjunction with the DB Plan statements. |
| 6 | Fiduciary Liability Insurance | Annually | October 31, 2024 | DB Plan | Reviewed and renewed annually. The Policy period expires November 30 each year. |

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

Halifax Regional Water Commission Employees' Pension Plan
Service Standards Report - 2024

**Quarter 4** (as at December 31, 2024)

| | | Actuary | | | | HW Staff | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Transaction** | **Standard** | **Total # Completed** | **# Past Standard** | **% within Standard** | **Average Service Days** | **Total # Completed** | **Average Service Days** | **Total Average Service Days** | **Compliance with PBA** |
| Retirement Estimates | 11 Business Days | 3 | 0 | 100% | 6 | 3 | 24 | 30 | Yes |
| Marriage Breakdown Calculations | 15 Business Days | | | | | | | | |
| Post-Retirement Death Letter | 15 Business Days | | | | | | | | |
| Pre-Retirement Death Benefit | 15 Business Days | | | | | | | | |
| Termination Estimate Calculations | | | | | | | | | |
| - Standard | 11 Business Days | 5 | 0 | 100% | 5 | 5 | 18 | 23 | Yes |
| - Non Standard (Incl RTAs) | 15 Business Days | | | | | | | | |
| | Total for Actuary | **8** | **0** | **100%** | **6** | **8** | **21** | **27** | |

# ITEM #2-I

**Halifax Water Board**
**March 27, 2025**

**TO:** Colleen Rollings, P.Eng., PMP., Chair and Members of the Halifax Regional Water Commission Board

**SUBMITTED BY:** Signed by: A65D6074EBC1467... Louis de Montbrun, CPA, CA, Director of Corporate Services/CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F6... Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** March 19, 2025

**SUBJECT:** Halifax Water Supplemental Pension Plan Report

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## ORIGIN

Financial information reporting.

## BACKGROUND

At the March 6, 2025, meeting of the Halifax Water Audit and Finance Committee, the attached Halifax Regional Water Commission Supplemental Pension Plan report was reviewed and discussed. The Committee approved forwarding the report to the Halifax Water Board as the Trustee of the Plan for their information.

## DISCUSSION

No additional information was requested to be brought forward to the Halifax Water Board meeting following the discussion of the attached at the Committee meeting.

## ATTACHMENT

1. Item 7 – Halifax Water Supplemental Pension Plan Report dated February 20, 2025

**ITEM #7**
**Halifax Water Audit and Finance Committee**
**March 6, 2025**

**TO:** Chair and Members of the Halifax Regional Water Commission Audit and Finance Committee

**SUBMITTED BY:** Signed by: A65B6874EBC1467...
Louis de Montbrun, CPA, CA, Director, Corporate Services / CFO

**APPROVED:** Signed by: Kenda MacKenzie 0C084AC815794F6...
Kenda MacKenzie, P.Eng., CEO & General Manager

**DATE:** February 20, 2025

**SUBJECT:** **Halifax Water Supplemental Pension Plan Reports**

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## ORIGIN

On April 28, 2016, the Halifax Water Board (the "Board") approved the creation of a Supplementary Pension Benefit Framework (Item #2Cb) for non-union staff members, to become effective January 1, 2017.

## RECOMMENDATION

It is recommended that the Audit and Finance Committee accept the Supplement Pension Plan Reports for the year ended December 31, 2024, and forward the reports to the Halifax Water Board as an information report.

## BACKGROUND

The Halifax Regional Water Commission Employees' Pension Plan (the "DB Plan") is a registered, defined benefit plan providing pension benefits on pensionable earnings capped at $142,354, which represents the 2015 Canada Revenue Agency (CRA) maximum annual pensionable earnings plus 1%. Earnings were capped at the 2015 level until 2024 when the cap was increased by 1%.

Pursuant to the framework approved by the Board, as noted above, the Halifax Water Employees' Defined Contribution Plan (the "DC Plan") and a Notional Retirement Compensation

Arrangement (the "NRCA") were established, effective January 1, 2017.

1 **DC Plan:**
A registered, defined contribution plan providing pension benefits on members' pensionable earnings between the DB Plan cap and CRA maximum, annual pensionable earnings threshold. Members contribute at a rate of 9% of pensionable earnings, which is matched by Halifax Water.

2 **NRCA:**
A non-registered agreement with individual members which provides pension benefits on members' earnings over the CRA maximum, annual pensionable earnings threshold. The NRCA is a non-contributory arrangement between Halifax Water and individual members. Halifax Water contributes 9% of a member's eligible earnings annually, holding these funds in trust for members until their retirement, termination or death. Interest applied to members' accounts is based on the annual CANSIM rate.

## DISCUSSION

The Financial Report from Industrial Alliance (see Appendix A attached) reports the revenues and disbursements for the DC Plan during the January 1, 2024, to December 31, 2024, period. The balance at the beginning of the period was $89.7 thousand. Revenues for the period consisted of new deposits of $20.7 thousand, and investment revenues of $13.1 thousand. Disbursements totaled $38.4 thousand, leaving a balance at the end of the period of $85.1 thousand.

As of December 31, 2024, the liability with respect to NRCA member accounts was $14.9 thousand, with contributions of $6.4 thousand in 2024, and interest applied totaling $0.6 thousand. For further details on the NRCA, see Appendix B attached.

## ATTACHMENTS

APPENDIX A - Industrial Alliance Financial Group, Financial Report for the Halifax Water Employees' Defined Contribution Plan – January 1, 2024, to December 31, 2024

APPENDIX B - Notional Retirement Compensation Arrangement Report at December 31, 2024

Report Prepared by: Signed by: Heather Britten 7F50B0451C00405...
Heather S. Britten, Quality Assurance Officer

Financial Reviewed by: Signed by: A65D6874EBC1467...
Louis de Montbrun, Director, Corporate Services/CFO

iA Financial Group

Period from January 1, 2024 to December 31, 2024

Contract 42730-001

## Summary of transactions

| | Book value | Market value |
|---|---|---|
| **Balance at the beginning of the period** | **$ 89,652.92** | **$ 89,652.92** |
| **Revenues** | | |
| **New deposits** | $ 20,677.20 | $ 20,677.20 |
| **Investment revenues** | $ 13,077.94 | $ 13,077.94 |
| **Total revenues** | **$ 33,755.14** | **$ 33,755.14** |
| **Disbursements** | | |
| **Deaths, withdrawals, other** | $ 37,104.28 | $ 37,104.28 |
| **Fees** | $ 1,118.46 | $ 1,118.46 |
| **Taxes** | $ 124.58 | $ 124.58 |
| **Total disbursements** | **$ 38,347.32** | **$ 38,347.32** |
| **Balance at the end of the period** | **$ 85,060.74** | **$ 85,060.74** |

**Halifax Water**
**Notional Retirement Compensation Arrangement**

| Annual Summary | | | | | |
|---|---|---|---|---|---|
| Year | Opening Balance | Contributions | Interest Earned | Withdrawals | Closing Balance |
| 2017 | $0.00 | $10,070.37 | $7.79 | | $10,078.16 |
| 2018 | $10,078.16 | $10,149.62 | $121.76 | | $20,349.53 |
| 2019 | $20,349.53 | $11,878.05 | $310.44 | | $32,538.03 |
| 2020 | $32,538.03 | $15,508.59 | $338.48 | | $48,385.10 |
| 2021 | $48,385.10 | $12,222.11 | $338.30 | ($9,447.68) | $51,497.83 |
| 2022 | $51,497.83 | $13,147.89 | $1,361.06 | | $66,006.77 |
| 2023 | $66,006.77 | $7,207.02 | $718.74 | ($50,469.97) | $23,462.57 |
| 2024 | $23,462.57 | $6,381.26 | $628.17 | ($15,546.03) | $14,925.96 |