Capital Regional District

625 Fisgard St.,
Victoria, BC V8W 1R7

Notice of Meeting and Meeting Agenda
Fernwood and Highland Water Service Commission

Tuesday, June 23, 2026 | **1:00 PM** | **SIMS Boardroom, 124 Rainbow Road, Salt Spring Island BC**

Annual General Meeting

MS Teams Meeting Link

G. Holman, K. Harris, G. Schroeder, L. Travelbea

The Capital Regional District strives to be a place where inclusion is paramount and all people are treated with dignity. We pledge to make our meetings a place where all feel welcome and respected.

Purpose of the Annual General Meeting

The agenda for the Annual General Meeting (AGM) is approved by the members of the Commission. The purposes (and hence the agenda items) of the meeting are:

• To have the last year's AGM minutes approved (by Commission members), and to present reports on the work of the Commission on the past year's operation, maintenance, capital upgrades and financial information of the service to the service residents and owners,
• To nominate members for appointment to the Commission, and
• To enable the public to share comments on subjects which relate to the work of the Commission. The Commission can identify (under "new business") issues on which it wants feedback at the meeting. Motions raised by the public at the AGM will be considered by the commission at a subsequent regular meeting.

The Annual General Meeting is for the 2025 fiscal year.

1. Territorial Acknowledgment

2. Approval of Agenda

3. Approval of Minutes

3.1. 26-0636 Minutes of May 22, 2025 and January 20, 2026 Fernwood and Highland Water Service Commission

Recommendation: That the minutes of the following meetings be adopted as circulated:
-May 22, 2025 Annual General Meeting (AGM)
-January 20, 2026 Special Meeting

Attachments: Minutes: May 22, 2025 AGM

Minutes: January 20, 2026

4. Director and Chair's Report

5. Senior Manager's Report

6. Report

6.1. 26-0637 Fernwood and Highland Water Service 2025 Annual Report

Recommendation: There is no recommendation. This report is for information only.

Attachments: Staff Report: Fernwood and Highland Water Service 2025 Annual Report
Appendix A: Fernwood & Highland 2025 Capital Projects List -Financial Summa
Appendix B: Fernwood & Highland 2025 Statement of Operations and Reserve

7. Election of Commissioners

-2 Positions

8. New Business

9. Outstanding Business

9.1. 26-0764 Summary Manganese Water Quality Event 2025

Recommendation: There is no recommendation. This report is for information only.

Attachments: Staff Report: Summary Manganese Water Quality Event 2025

10. Adjournment

Meeting Minutes - Draft

Fernwood and Highland Water Service Commission

Thursday, May 22, 2025 **10:00 AM** **SIMS Boardroom**
124 Rainbow Road
Salt Spring Island BC

Annual General Meeting

PRESENT:

COMMISSION MEMBERS: G. Holman, B. Travelbea, L. Travelbea,

STAFF: D. Ovington, Senior Manager, SSI Administration, C. Hopp, Manager SSI Engineering, K. Vincent, Senior Financial Advisor, Finance Services (EP), A. Elliyon Financial Analyst, Finance Services (EP), and M. Williamson, Committee Clerk, (Recorder)

Electronic Participation- (EP)

These minutes follow the order of the agenda although the sequence may have varied.

The meeting was called to order at 10:05 am.

1. Territorial Acknowledgment

D. Ovington provided a Territorial Acknowledgement.

2. Election of Chair

The Senior Manager, SSI Administration called for nominations for the position of Chair of the Fernwood and Highland Water Service Commission for 2025.

Director Holman nominated Commissioner L. Travelbea, Commissioner L. Travelbea accepted the nomination.

D. Ovington called for nominations a second time.

D. Ovington called for nominations a third time.

Hearing no further nominations, the Senior Manager, SSI Administration declared Commissioner L. Travelbea Chair of the Fernwood and Highland Water Services Commission by acclamation.

3. Approval of Agenda

MOVED By Commissioner B. Travelbea, SECONDED by Director Holman,
That agenda for the May 22, 2025, Annual General Meeting of the Fernwood and Highland Water Services Commission be approved as presented.
CARRIED

4. Adoption of Minutes

4.1. Minutes of November 04, 2024 and January 21, 2025 Fernwood and Highland
Water Service Commission

MOVED By Commissioner B. Travelbea, SECONDED by Director Holman,
That the minutes of the November 04, 2024 meeting be adopted as circulated.
CARRIED

MOVED By Commissioner B. Travelbea, SECONDED by Director Holman,
That the minutes of the January 21, 2025 Annual General Meeting be adopted as circulated.
CARRIED

5. Director and Chair's Report

Director Holman spoke regarding Carolyn Hopp being appointed as the SSI Engineer Manager.

6. Report

6.1. Fernwood and Highland Water Service Annual Report 2024

D. Ovington presented the report.

This report was received for information.
-Highland Upper Reservoir Tank replacement design has been completed

7. Election of Commissioners

Request for volunteers was advertised as per the requirements and staff confirmed no new nominations were received.

MOVED by Director Holman SECEONDED by Commissioner B. Travelbea,
That the Fernwood and Highland Water Service Commission request the Capital Regional District Board appoint Kirk Harris to the Commission for the July 1, 2025 to December 31, 2027 term.
CARRIED

8. New Business

Discussion ensued regarding posting information about meetings for the public.

9. Outstanding Business

There was no outstanding Business.

10. Adjournment

MOVED By Commissioner B. Travelbea, SECONDED by Director Holman,
That the Fernwood and Highland Water Service Commission adjourn the meeting at 10:45am.
CARRIED

CHAIR

SENIOR MANAGER

Meeting Minutes - Draft

Fernwood and Highland Water Service Commission

Tuesday, January 20, 2026 **1:00 PM** **SIMS Boardroom**
124 Rainbow Road
Salt Spring Island BC

Special Meeting

PRESENT:
COMMISSION MEMBERS: G. Holman, K. Harris, G. Schroeder, L. Travelbea

STAFF: S. Henderson, General Manager, Electoral Area Services (EP); D. Ovington, Senior Manager, SSI Administration; C. Hopp, Manager SSI Engineering, SSI Administration; L. Xu, Manager, Local Area Services, Finance Services (EP); S. Cook, Engineering Tech, SSI Engineering; and M. Williamson, Committee Clerk, (Recorder)

Electronic Participation- (EP)

These minutes follow the order of the agenda although the sequence may have varied.

The meeting was called to order at 1:01 pm.

1. Territorial Acknowledgement

D. Ovington provided a Territorial Acknowledgement.

2. Election of Fernwood and Highland Water Service Commission Chair

The Senior Manager, SSI Administration called for nominations for the position of Chair of the Fernwood and Highland Water Services Commission for 2026.

Commissioner Harris nominated Commissioner Travelbea, Commissioner Travelbea accepted the nomination.

D. Ovington called for nominations a second time.

D. Ovington called for nominations a third time.

Hearing no further nominations, the Senior Manager, SSI Administration declared Commissioner Travelbea Chair of the Fernwood and Highland Water Services by acclamation.

3. Approval of Agenda

MOVED by Director Holman, SECONDED by Commissioner Schroeder,
That a late delegation D. Repen, Fernwood and Highland service area resident, be permitted to speak.
CARRIED

MOVED By Director Holman, SECONDED by Commissioner Harris,
That agenda for the January 20, 2026, special Meeting of the Fernwood and Highland Water Services Commission be approved as amended with the addition of agenda items 4.1. Delegation: Darcy Repen, Fernwood and Highland Service Area Resident Re: Agenda Item 5.1. Capital Projects Requiring Funding - Fulford Water Service Voter Approval for Borrowing.
CARRIED

This report was received for information.

4. Presentations/Delegations

4.1. Delegation: Darcy Repen, Fernwood and Highland Service Area Resident Re: Agenda Item 5.1. Capital Projects Requiring Funding - Fulford Water Service Voter Approval for Borrowing

D. Repen spoke to item 5.1.

5. Special Meeting Matters

5.1. Capital Projects Funding - Fernwood and Highland Water Service Voter Approval for Borrowing

MOVED by Director Holman, SECONDED by Commissioner Schroeder,
That the rules of the Capital Regional District Procedures Bylaw be suspended to allow D. Repen to speak regarding agenda item 5.1.
CARRIED

MOVED by Commissioner Schroeder, SECONDED by Commissioner Harris,

1. **That the petition process be initiated to borrow up to $400,000 over 15 years debt term to complete the capital improvement projects.**
2. **If the petition process is successful, that a loan authorization bylaw be advanced to the Electoral Areas Committee and Capital Regional District Board for readings and adoption; and**
3. **That staff complete the remaining steps required to secure the funds and begin the projects.**

CARRIED

6. Adjournment

MOVED by Director Holman, SECONDED by Commissioner Harris,
That the Fernwood and Highland Water Service Commission adjourn the meeting at 02:21pm.
CARRIED

_____
CHAIR

_____
SENIOR MANAGER

Fernwood and Highland Water Service

2025 Annual Report

CRD | Drinking Water

INTRODUCTION

This report provides a summary of the Fernwood and Highland Water Service for 2025. It includes a description of the service, summary of the water supply, demand and production, drinking water quality, operations highlights, capital project updates and financial report.

SERVICE DESCRIPTION

In 2010 the Highland and Fernwood water services merged to construct a new water treatment plant and to operate as a single water system. Both former water services hold legacy budgets to repay existing debt and outstanding capital works. The service obtains its drinking water from St. Mary Lake, which lies within an uncontrolled multi-use watershed. The Capital Regional District (CRD) holds five licenses to divert a total of up to 230,000 m^3 per year and store up to 30,800 m^3. St. Mary Lake is subject to seasonal water quality changes and is affected by periodic algae blooms.

The Highland service was first developed in the 1970's under the name Vesuvius Holdings and was converted to the Highland Water System in 1978. It then became a CRD service in 2004. The Fernwood service was created in the 1970's by a private developer and was converted to the Fernwood Improvement Water District in 1984. It then became a Capital Regional District (CRD) service in 1989. The Fernwood and Highland Water Service (Figure 1) is comprised of 333 parcels of land with 321of those parcels connected to the service.

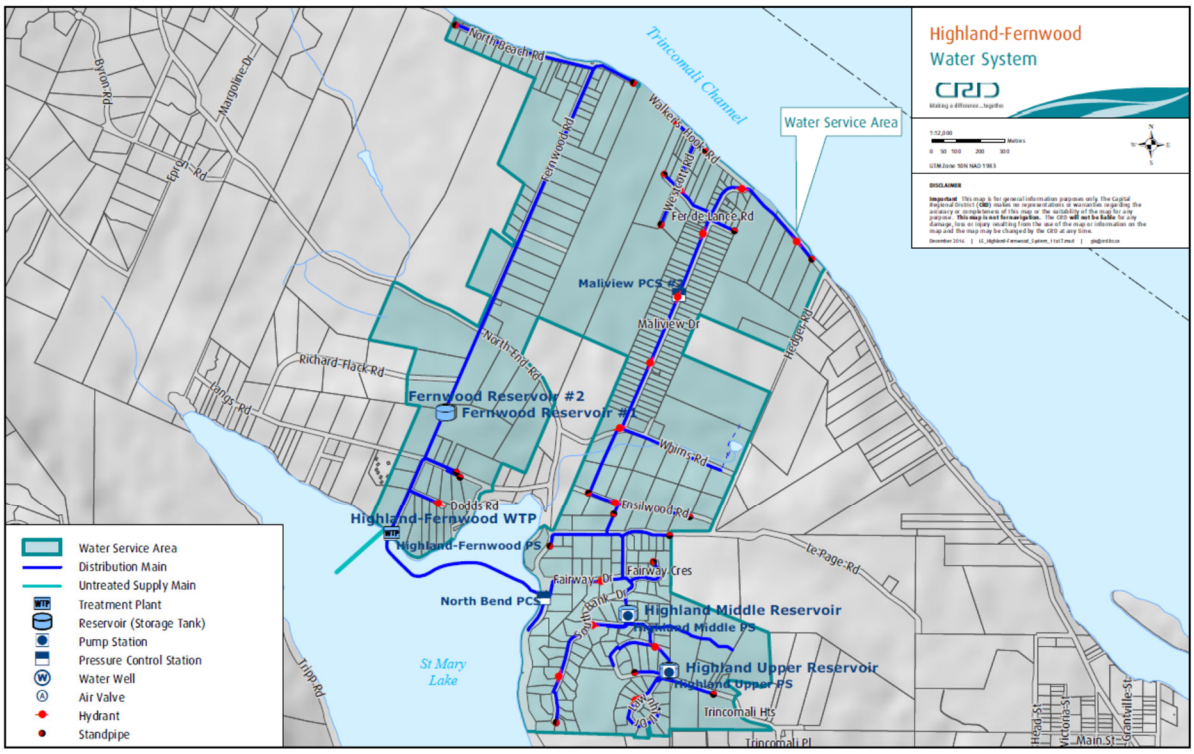

Figure 1: Fernwood and Highland Water Service

The Fernwood and Highland water system is primarily comprised of:

- a water treatment plant (WTP) that draws water from St. Mary Lake and treats it at a location on Maycock Road, adjacent to the lake. The water is treated using a rapid mix system, flocculation, dissolved air floatation (DAF) and filters, seasonal chemical pre-oxidation, ultraviolet disinfection, then chlorination prior to being pumped, via the distribution system to four different reservoirs. The WTP design flow rate is 11.3 L/sec (150 Igpm);
- one raw water pump station on Maycock Road, adjacent to the lake. (flow rate of two pumps running is 4.6 L/sec (60 Igpm);
- approximately 12,000 m of water distribution pipe
- 4 water reservoirs – one 180 m^3 (40,000 Ig) on the Highland system, one 91 m^3 (20,000 Ig) on the Highland system, one 45 m^3 (10,000 Ig) on the Fernwood system and, one 91 m^3 (20,000 Ig) on the Fernwood system
- 2 water system booster pumps:
  - Highlands Middle Reservoir
  - Highlands Upper Reservoir
- fire hydrants, standpipes, and gate valves
- water service connections complete with water meters
- 2 pressure reducing valve stations - one on North End Road and one on Maliview Drive.

WATER PRODUCTION AND DEMAND

Referring to Figure 2, 89,480 cubic meters (m^3) of water was extracted (water production) from St. Marys Lake in 2025; a 14% increase from the previous year and a 22% increase from the five-year rolling average. Water demand (customer water billing) for the service totalled 54,798 m^3 of water; a 1% decrease from the previous year and a 6% increase from the five-year rolling average.

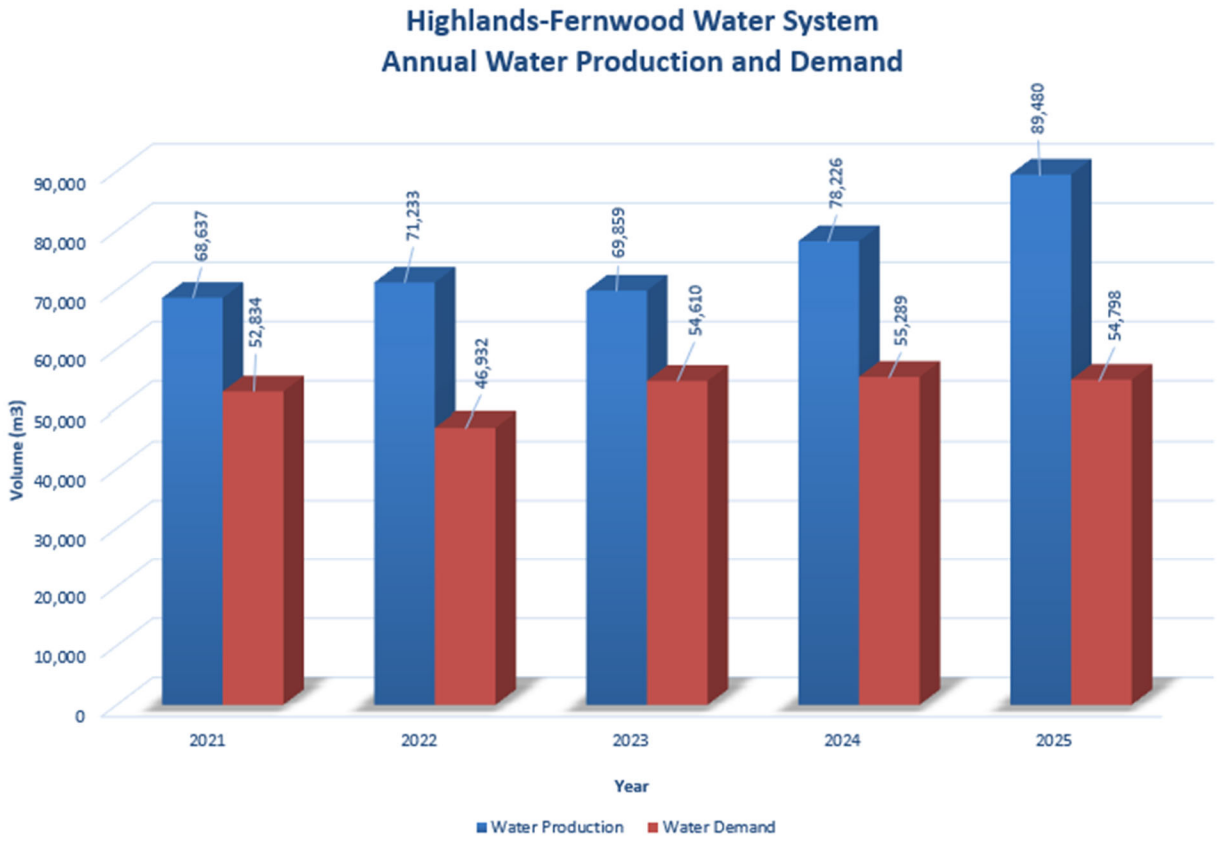

Figure 2: Fernwood and Highland Water Service Annual Water Production and Demand

Water production by month for the past five years is shown in Figure 3. As with most water systems, water consumption follows a typical diurnal daily pattern and a seasonal monthly pattern where the monthly total flow peaks during the summer months. The 2025 monthly flow information is indicative of this seasonal pattern. A notable increase in production above previous averages between March and October 2025. This increase is due to a combination of several leaks in the system as well as additional water flushing as part of the response to the manganese water quality advisory issued. Many water repairs were conducted in 2025 and identified in the Operational Highlights section of this report.

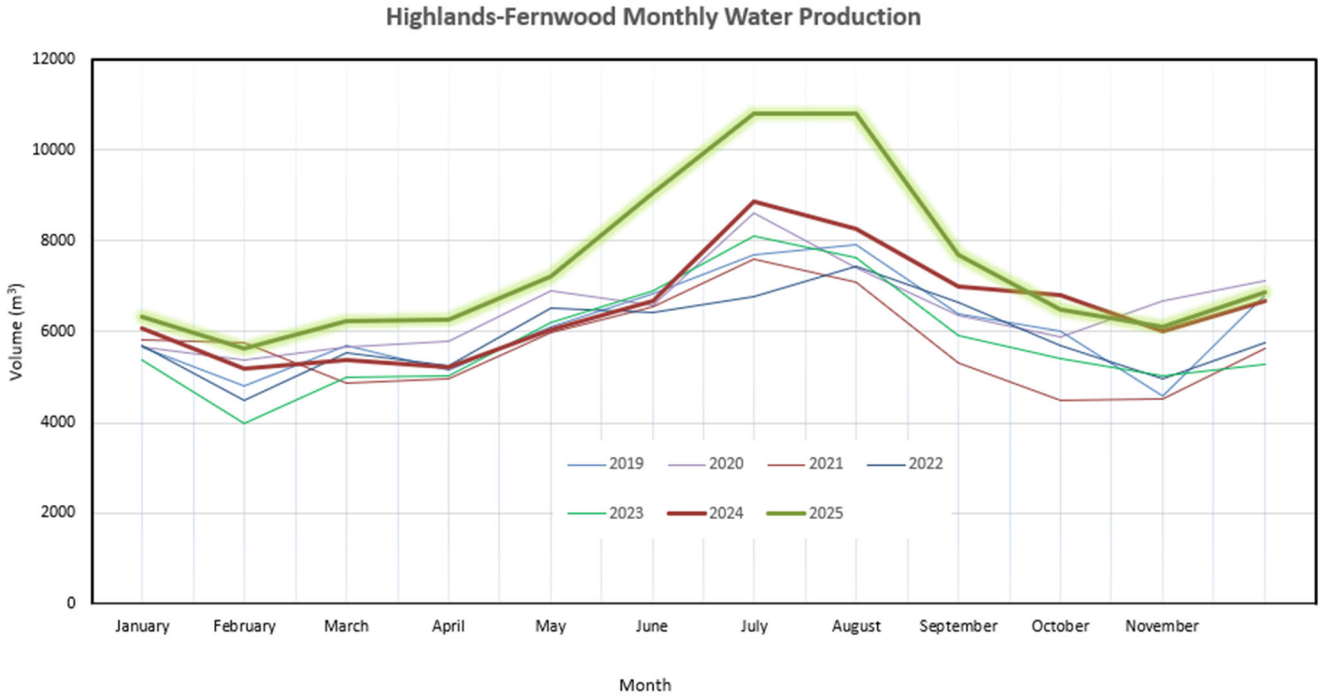

Figure 3: Fernwood and Highland Water Service Monthly Water Production

The Fernwood and Highland Water System is fully metered. Water meters are manually read on a quarterly basis, and the data enables water production and consumption to be compared to estimate leakage losses in the distribution system. The difference between water produced and water demand (total metered consumption) is called non-revenue water and includes distribution leaks, meter error, and unmetered uses such as fire hydrant usage, distribution system maintenance, and process water for the treatment plant. Non-revenue water is approximately 39%. This represents a 9.5% increase from the previous year. This increase is largely due to additional water system flushing during the operational response to manganese as well as several repaired leaks in the distribution system.

WATER QUALITY

In 2025, the analytical results (biological, chemical and physical parameters) of water samples collected from the Highland/Fernwood Water Systems indicated that the drinking water supplied to the customers was generally of good quality. The Highland distribution system experienced one water main break that led to partial Boil Water Advisories (BWA): August 20 – 22. Also, St. Mary Lake experienced an almost continuous cyanobacteria bloom from February to October (except for mid-June to mid-July). Various species of potentially toxin producing cyanobacteria were responsible for this bloom, but all samples taken from the intake of the Highland/Fernwood Water System tested negative for microcystin, a cyanotoxin frequently associated with such blooms. During these algal events, the Highland/Fernwood water treatment plant was able to produce safe and good quality drinking water.

A new intake located deeper in St. Mary Lake was commissioned in January 2025. Drawing water from this deeper zone led to high iron and manganese concentrations in the raw water when anoxic conditions developed in the stratified lake in July 2025. A manganese Water Quality Advisory was issued for the entire system from July 11 to August 11. Drinking water was also discoloured during this period and again during a second episode in November. An emergency shallow intake was used from August 1 to November 5 to address the elevated metal concentrations and associated discolouration. In addition, iron and manganese treatment was commissioned on November 6 to prevent similar events in the future.

The data below provides a summary of the water quality characteristics in 2025:

Raw Water:

- Raw water generally showed low levels of total coliform and *E. coli* during cold-weather periods, with pronounced spikes in the summer.
- No parasitic *Cryptosporidium* oocysts or *Giardia* cysts were detected.
- Analyses of raw water samples showed low iron and manganese concentrations from January to June, followed by sharply elevated concentrations of both metals in July. Manganese in particular reached levels not previously recorded in the raw water entering the treatment plant, peaking at 618 µg/L on July 23. This increase resulted from using a new deep-water intake for the first time during the summer season, which extracted water from an anoxic zone in the seasonally stratified St. Mary Lake. Anoxic conditions promote the release of iron and manganese from lake sediments. After switching to a newly installed shallow emergency intake on August 1st, that supplied water from a higher and more oxygenated layer of the water column, concentrations of both metals declined. Iron and manganese concentrations rose again in November following the lake turnover event, reaching 141 µg/L for manganese and 96 µg/L for iron. This seasonal increase in metal concentrations after turnover was consistent with historical patterns.
- The raw water was slightly hard (median hardness 39.2 mg/L $CaCO_3$).
- Raw water turbidity was generally below or near 1 NTU, with occasional higher values during the summer and winter months (for example, up to 1.5 NTU in February and up to 2.1 NTU in September). These periods of elevated turbidity were typically associated with strong cyanobacteria blooms or rain driven runoff events.
- A median annual total organic carbon (TOC) concentration of 4.1 mg/L confirms the mesotrophic (semi-productive) to eutrophic (productive) status of St. Mary Lake.
- Cyanobacteria blooms involving several species occurred almost continuously from winter through fall in St. Mary Lake. One pronounced bloom lasted from February 11 to June 13, followed by another from July 15 to October 16. Although these blooms included species capable of producing toxins, no cyanotoxins (microcystin) were detected in the raw water entering the treatment plant.

Treated Water:

- Parts of the Highland Distribution System were subject to a precautionary Boil Water Advisory (BWA) due to a main break event between August 20 and 22.
- The treated water was safe to drink outside the period covered by the BWA, and no indicator bacteria were detected in any Fernwood Distribution System sample throughout the year. The Highland Distribution System recorded one sample with a low concentration of total coliforms on September 2. A resample collected shortly afterward was free of coliform bacteria, indicating that there was no actual drinking water contamination.
- Treated water turbidity remained well below the 1.0 NTU limit throughout most of the year across the systems. A few distribution system samples in the Fernwood and Highland systems showed elevated turbidity during periods of increased iron and manganese concentrations. These metals precipitate after contact with chlorine and can accumulate in low flow areas of the distribution systems, leading to localized turbidity increases. Flushing was carried out to remove the accumulated particles.
- Levels of the regulated disinfection by-product trihalomethanes (THM) were well below the GCDWQ limit of 100 µg/L across both the Fernwood and Highland Distribution Systems. Haloacetic acids (HAA) were not tested in 2025. When THM concentrations remain low, HAA testing is conducted only every five years to confirm baseline conditions. The most recent HAA testing was completed in 2021.
- The treated water total organic carbon concentration (TOC) in both distribution systems was similar to previous years, ranging from 1.5 to 2.4 mg/L in the Fernwood Distribution System, and 1.5 to 2.6 mg/L in the Highland Distribution System. There is currently no guideline in the GCDWQ for TOC levels, however the USEPA suggests a treated water TOC concentration of < 2 mg/L as confirmation of effective treatment and disinfection by-product control.
- Iron and/or manganese concentrations across both distribution systems were high during July water quality event and elevated during the lake turnover event in November. Both periods saw the typical iron and manganese induced drinking water discolouration, but during the July event the manganese concentrations even exceeded the GCDWQ health limit and a Water Quality Advisory was issued between July 11 to August 11. During the November event, potassium permanganate treatment was introduced at the water treatment plant, which ensured that any exceedances were limited to the GCDWQ aesthetic objective only.
- Water colour values exceeded the aesthetic objective during the periods of elevated manganese, but also in individual distribution system samples in February and May due to sedimentation issues in low flow areas.
- Water temperature exceeded the aesthetic objective from June to October.

Table 1, 2 and 3 below provide a summary of the 2025 raw and treated water test results.

Water Quality data collected from these two distribution systems can be reviewed on the following CRD website: https://www.crd.bc.ca/about/data/drinking-water-quality-reports

OPERATIONAL HIGHLIGHTS

The following is a summary of the major operational issues that were addressed by CRD Electoral Area Services Water Operations staff in 2025:

Emergency response to water system breaks at:

- 314 Fernwood Rd shutoff water for leak repair on private side
- 143 Maliview Dr service line repair
- 272 Maliview Dr water main break and hydrant replacement
- 890 Walkers Hook Rd watermain break
- 110 Southbank Rd watermain break
- 214 Maliview Rd watermain break
- 105 Fernwood Rd service line repair
- 150 Maliview Dr service line repair
- 120 Lawnhill Dr service line repair
- 260 Southbank Dr service line repair
- Manganese water quality response

Treatment Plant:

- Raw water pump shaft seal replacement
- Replaced pump room heater due to failure
- Chlorine room electrical repairs and ventilation
- Air saturator pressure control repair
- Chlorine analyzer probe replacement and recalibrations

Distribution System:

- 196 Maliview Dr service line replacement to property line
- 315 Fernwood Rd meter replacement due to failure
- 320 Maliview Dr main valve repair
- 124 Fer de Lance main valve repair
- 273 Maliview Dr service line replacement due to leak
- 1128 North Beach Rd service meter leak repair
- 188 Langs Rd Standpipe replacement due to leak
- Upper reservoir pressure pump replacement due to failure
- Maliview Dr pressure reducing valve repairs

CAPITAL IMPROVEMENTS

The following are capital projects in progress or completed in 2025:

19-01 Water Intake and Screen
The Water Intake and Screen project was completed in early 2025 with the implementation of the permanent new intake.

19-03 Safe Work Procedures
The safe work procedures have been implemented as needed and the project has been closed. Going forward procedures will be included in operations budgeting.

21-02 Power Generation Equipment Design
This project is completed and closed with the design phase delivered.

22-03 Safety Improvement for H&F WTP
The anchors were installed above the WTP equipment. The project is completed and closed.

24-06 Spares for Chlorine and Coagulant Pumps
This project is to purchase critical spares.

24-04 Safety Chain Replacement WTP
This chain was replaced with a railing and is complete and closed.

21-01 Public Engagement
The public engagement project is for support of the public engagement and borrowing process. It remains open while the borrowing process is still unresolved for critical projects.

24-05 Reservoir 1 Repair roof top Railing
The anchor points on Fernwood Reservoir 1 were installed to replace the railing. Operator training will complete the project.

The Capital Projects Financial Summary for 2025 can be found in Appendix A.

Upcoming Projects in 2026 include:

- Water main replacement strategy – reserve and debt funded unsuccessfully
- Fernwood Pump Station demolition – reserve funded
- SCADA Design project for critical controls upgrade – design phase reserve funded
- SCADA controls upgrade – construction phase CWF and debt funded unsuccessfully
- Highland Middle Reservoir assessment – reserve funded
- Pressure Reducing Valve design and construction – CWF and reserve funded
- Intake Location and Sampling program – CWF and reserve funded

2025 FINANCIAL REPORT

Please refer to the attached 2025 Statement of Operations and Reserve Balances.

Revenue includes parcel taxes (Transfers from Government), fixed user fees (User Charges), water sales (Sale-Water), interest on savings (Interest earnings), transfers from Operating Reserve Fund, and miscellaneous revenue such as late payment charges (Other revenue).

Expenses include all costs of providing the service. General Government Services includes budget preparation, financial management, utility billing and risk management services. CRD Labour and Operating Costs include CRD staff time as well as the costs of equipment, tools, and vehicles. Debt servicing costs are interest and principal payments on long-term debt. Other Expenses include all other costs to administer and operate the water system, including insurance, water testing and electricity.

The difference between Revenue and Expenses is reported as Net revenue (expenses). Any transfers to or from capital or reserve funds for the service (Transfers to own funds) are deducted from this amount and it is then added to any surplus or deficit carry forward from the prior year, yielding an Accumulated Surplus (or deficit). In alignment with Local Government Act Section 374 (11), any deficit must be carried forward and included in the next year's financial plan.

WATER SYSTEM PROBLEMS - WHO TO CALL:

To report any event or to leave a message regarding the Highland/Fernwood Water System, call either:

CRD water system *emergency* call centre: **1-855-822-4426 (toll free)**
1-250-474-9630 (toll)

CRD water system *general enquiries* (toll free): **1-800-663-4425**

When phoning with respect to an emergency, please specify to the operator, the service area in which the emergency has occurred.

Submitted by:	Dan Ovington, BBA , Senior Manager, Salt Spring Island Electoral Area
Concurrence:	Jason Dales, B.Sc, WD IV, Senior Manager, Infrastructure Operations
Concurrence:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Varinia Somosan, CPA, CGA, Sr. Mgr., Financial Services / Deputy CFO
Concurrence:	Stephen Henderson, MBA, P.G.Dip.Eng, BSc, General Manager, Electoral Area Services
Concurrence:	Ted Robbins, B. Sc., C. Tech., Chief Administrative Officer

Appendix A: 2025 Capital Projects List -Financial Summary
Appendix B: 2025 Statement of Operations and Reserve Balances

For questions related to this Annual Report, please email saltspring@crd.bc.ca

Table 1: 2025 Summary of Raw Water Test Results, Highland / Fernwood Water System										
PARAMETER		**2025 ANALYTICAL RESULTS**				**CANADIAN GUIDELINES**	**2015 - 2024 ANALYTICAL RESULTS**			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum	Range Maximum
ND means Not Detected by analytical method used										
Physical/Biological Parameters										
Carbon, Total Organic	mg/L as C	**4.1**	4	3.3	4.7		3.98	35	2.8	5.67
Colour, True	TCU	**11**	18	6	20		7	146	3	25
Hardness as $CaCO_3$	mg/L	**38.9**	9	36.9	39.7	No Guideline Required	38.65	38	28.1	46.1
pH	pH units	Not tested in 2025				7.0 - 10.5 AO	7.7	20	7.18	8.9
Turbidity	NTU	**1.1**	18	0.35	2.1		1.3	178	0.33	19
Water Temperature	°C	**10**	29	4	24	15°C AO	15	219	5	25
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	**34**	19	1	790		150	176	<1	4000
E. coli	CFU/100 mL	**< 1**	19	< 1	25		< 1	177	<1	180
Hetero. Plate Count, 7 day	CFU/1 mL	Last analyzed in 2013					Last analyzed in 2013			
Algal Toxins										
Microcystin (Abraxis)	ug/L	<1	24	<1	<1	1.5	<1	100	<1	<1
Cryptosporidium, Total oocysts	oocysts/100 L	**<1**	2	<1	<1	Zero detection desirable	< 1	18	<1	1.92
Giardia, Total cysts	cysts/100 L	**<1**	2	<1	<1	Zero detection desirable	< 1	18	<1	1.2
Metals										
Aluminum	ug/L as Al	**< 3**	9	< 3	11.6	2900 MAC / 100 OG	6.8	38	< 3	41.8
Antimony	ug/L as Sb	**< 0.5**	9	< 0.5	< 0.5	6 MAC	< 0.5	38	0.05	< 0.5
Arsenic	ug/L as As	**0.64**	9	0.28	1.04	10 MAC	0.48	38	0.32	0.85
Barium	ug/L as Ba	**14**	9	11.7	22.3	100 MAC	12.65	38	< 1	15.1
Beryllium	ug/L as Be	**< 0.1**	9	< 0.1	< 0.1		< 0.1	38	< 0.01	< 0.1
Bismuth	ug/L as Bi	**< 1**	9	< 1	< 1		< 1	38	< 0.005	< 1
Boron	ug/L as B	**< 50**	9	< 50	54	5000 MAC	< 50	38	43	343
Cadmium	ug/L as Cd	**< 0.01**	9	< 0.01	< 0.01	7 MAC	< 0.01	38	< 0.005	0.056
Calcium	mg/L as Ca	**9.97**	9	9.45	10.4	No Guideline Required	9.96	38	8.51	12.3
Chromium	ug/L as Cr	**< 1**	9	< 1	< 1	50 MAC	< 1	38	< 0.1	1.5
Cobalt	ug/L as Co	**< 0.2**	9	< 0.2	0.22		< 0.2	38	0.0264	1.23
Copper	ug/L as Cu	**0.63**	9	0.5	2.35	2000 MAC / ≤ 1000 AO	1.185	38	< 0.5	4.55
Iron	ug/L as Fe	**48.4**	9	< 5	483	≤ 100 AO	21	38	6	176
Lead	ug/L as Pb	**< 0.2**	9	< 0.2	0.34	5 MAC	< 0.2	38	0.0954	0.36
Lithium	ug/L as Li	**7.7**	9	7	8.3		7.9	26	6.4	11.5
Magnesium	mg/L as Mg	**3.39**	9	3.16	3.46	No Guideline Required	3.275	38	1.09	3.83
Manganese	ug/L as Mn	**136**	9	5.3	618	120 MAC / ≤ 20 AO	23.45	38	5.4	110
Molybdenum	ug/L as Mo	**< 1**	9	< 1	< 1		< 1	38	0.059	4.4
Nickel	ug/L as Ni	**< 1**	9	< 1	< 1		< 1	38	0.298	5.9
Potassium	mg/L as K	**0.861**	9	0.794	0.908		0.828	38	0.305	0.963
Selenium	ug/L as Se	**< 0.1**	9	< 0.1	0.51	50 MAC	< 0.1	38	< 0.04	0.14
Silicon	ug/L as Si	**1870**	9	< 100	2250		1790	38	345	6780
Silver	ug/L as Ag	**< 0.02**	9	< 0.02	< 0.02	No Guideline Required	< 0.02	38	< 0.005	0.062
Sodium	mg/L as Na	**19.6**	9	18.2	21.4	≤ 200 AO	19.5	38	17.9	87.3
Strontium	ug/L as Sr	**98.2**	9	90.4	106	7000 MAC	95.35	38	36.7	116
Sulphur	mg/L as S	**3.9**	9	3.6	4.7		4.35	38	< 3	8.7
Tin	ug/L as Sn	**< 5**	9	< 5	< 5		< 5	38	< 0.2	< 5
Titanium	ug/L as Ti	**< 5**	9	< 5	< 5		< 5	38	0.82	< 5
Thallium	ug/L as Tl	**< 0.01**	9	< 0.01	< 0.01		< 0.01	38	< 0.002	< 0.05
Uranium	ug/L as U	**< 0.1**	9	< 0.1	< 0.1	20 MAC	< 0.1	38	0.0026	< 0.1
Vanadium	ug/L as V	**< 5**	9	< 5	< 5		< 5	38	< 0.2	< 5
Zinc	ug/L as Zn	**< 5**	9	< 5	7.3	≤ 5000 AO	< 5	38	1.98	24.2
Zirconium	ug/L as Zr	**< 0.1**	9	< 0.1	< 0.1		< 0.1	38	< 0.1	< 0.5

Table 2: 2025 Summary of Treated Water Test Results, Fernwood Distribution System										
PARAMETER		2025 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2015 - 2024 ANALYTICAL RESULTS			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum	Range Maximum
ND means Not Detected by analytical method used										
Physical Parameters										
Hardness as $CaCO_3$	mg/L	**39.5**	27	36.6	47.6		38.9	91	34.1	49.1
Carbon, Total Organic	mg/L as C	**1.9**	8	1.5	2.4		1.8	67	1.1	3
Colour, True	TCU	**< 2**	36	1	8		< 2	135	1.8	8
pH	pH units	Not tested in 2025					7	19	6.55	8.1
Turbidity	NTU	**0.15**	38	0.05	14	1 MAC and ≤ 5 AO	0.17	368	0.05	8.6
Water Temperature	°C	**12**	120	4.5	24	15°C AO	14	795	4	26
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	**< 1**	73	< 1	< 1	0 MAC	< 1	536	<1	9
E. coli	CFU/100 mL	**< 1**	73	< 1	< 1	0 MAC	< 1	536	<1	< 2
Hetero. Plate Count, 7 day	CFU/1 mL	Not tested in 2025				No Guideline Required	< 10	73	<1	800
Algal Toxins										
Microcystin (Abraxis)	ug/L	Not tested in 2025				1.5 MAC	<1	41	<1	<1
Anatoxin A	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Cylindrospermopsin	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-RR	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-YR	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-LR	ug/L	Last analyzed in 2013				1.5 MAC	Last analyzed in 2013			
Microcystin-LA	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Nodularin	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Disinfectants										
Disinfectants										
Chlorine, Free Residual	mg/L as Cl2	**1.035**	140	0.23	2.2	No Guideline Required	1.16	1321	0.2	4.5
Chlorine, Total Residual	mg/L as Cl_2	**1.48**	4	1.03	1.95	No Guideline Required	1.43	780	0.29	3.5
Disinfection By-Products										
Trihalomethanes (THMs)										
Bromodichloromethane	ug/L	**10.65**	4	8.7	13		14.5	40	6.94	20.6
Bromoform	ug/L	**< 1**	4	< 1	< 1		< 1	40	< 0.1	< 1
Chloroform	ug/L	**18**	4	14	21		22.5	40	12.7	45
Chlorodibromomethane	ug/L	**4.05**	4	3.4	4.9		5.75	40	2.19	9.07
Total Trihalomethanes	ug/L	**33**	4	26	39	100 MAC	40	40	23	73
Haloacetic Acids (HAAs)										
HAA5	ug/L	Not tested in 2025				80 MAC	#N/A	#N/A	#N/A	#N/A
Metals										
Aluminum	ug/L as Al	**10.8**	27	< 3	98.4	2900 MAC / 100 OG	9.6	91	3.1	389
Antimony	ug/L as Sb	**< 0.5**	27	< 0.5	< 0.5	7 MAC	< 0.5	91	< 0.5	< 0.5
Arsenic	ug/L as As	**0.38**	27	0.2	0.67	10 MAC	0.32	91	0.2	0.76
Barium	ug/L as Ba	**13.4**	27	10.8	19.9	100 MAC	12.1	91	9.9	16.4
Beryllium	ug/L as Be	**< 0.1**	27	< 0.1	< 0.1		< 0.1	91	< 0.1	< 0.1
Bismuth	ug/L as Bi	**< 1**	27	< 1	< 1		< 1	91	< 1	< 1
Boron	ug/L as B	**< 50**	27	< 50	54	5000 MAC	< 50	91	< 50	68
Cadmium	ug/L as Cd	**< 0.01**	27	< 0.01	0.025	7 MAC	< 0.01	91	< 0.01	0.016
Calcium	mg/L as Ca	**10.3**	27	9.51	13.8	No Guideline Required	10.3	91	8.57	15.3
Chromium	ug/L as Cr	**< 1**	27	< 1	< 1	50 MAC	< 1	91	< 1	< 1
Cobalt	ug/L as Co	**< 0.2**	27	< 0.2	< 0.2		< 0.2	91	< 0.2	0.93
Copper	ug/L as Cu	**3.51**	27	0.26	13.4	2000 MAC / ≤ 1000 AO	4.64	91	0.39	83.2
Iron	ug/L as Fe	**36.8**	27	< 5	159	≤ 100 AO	27.1	91	< 5	770
Lead	ug/L as Pb	**0.28**	27	< 0.2	1.67	5 MAC	0.37	95	< 0.2	78.1
Lithium	ug/L as Li	**7.8**	27	7.1	9.3		7.4	53	6.5	11.7
Magnesium	mg/L as Mg	**3.28**	27	2.35	3.54	No Guideline Required	3.16	91	2.52	3.7
Manganese	ug/L as Mn	**17.7**	27	< 1	789	120 MAC / ≤ 20 AO	2.4	91	< 1	270
Molybdenum	ug/L as Mo	**< 1**	27	< 1	< 1		< 1	91	< 1	< 1
Nickel	ug/L as Ni	**< 1**	27	< 1	< 1		< 1	91	< 1	< 1
Potassium	mg/L as K	**0.841**	27	0.785	1.01		0.811	91	0.693	0.911
Selenium	ug/L as Se	**< 0.1**	27	< 0.1	< 0.1	50 MAC	< 0.1	91	< 0.1	< 0.1
Silicon	ug/L as Si	**1950**	27	< 100	2460		1780	91	322	3700
Silver	ug/L as Ag	**< 0.02**	27	< 0.02	< 0.02	No Guideline Required	< 0.02	91	< 0.02	0.02
Sodium	mg/L as Na	**22.2**	27	19.6	24.3	≤ 200 AO	22	91	19.3	25.4
Strontium	ug/L as Sr	**97.9**	27	87.1	107	7000 MAC	95.3	91	85.9	113
Sulphur	mg/L as S	**4**	27	3.1	5.7		4.1	91	3.2	5.9
Tin	ug/L as Sn	**< 5**	27	< 5	< 5		< 5	91	< 5	< 5
Titanium	ug/L as Ti	**< 5**	27	< 5	< 5		< 5	91	< 5	< 5
Thallium	ug/L as Th	**< 0.01**	27	< 0.01	< 0.01		< 0.01	91	< 0.01	0.042
Uranium	ug/L as U	**< 0.1**	27	< 0.1	< 0.1	20 MAC	< 0.1	91	< 0.1	< 0.1
Vanadium	ug/L as V	**< 5**	27	< 5	< 5		< 5	91	< 5	< 5
Zinc	ug/L as Zn	**14**	27	< 5	41.9	≤ 5000 AO	17.8	91	< 5	76.2
Zirconium	ug/L as Zr	**< 0.1**	27	< 0.1	< 0.1		< 0.1	91	< 0.1	< 0.5

Table 3: 2025 Summary of Treated Water Test Results, Highland Distribution System										
PARAMETER		2025 ANALYTICAL RESULTS				CANADIAN GUIDELINES	2015 - 2024 ANALYTICAL RESULTS			
Parameter Name	Units of Measure	Annual Median	Samples Analyzed	Range Minimum	Range Maximum	≤ = Less than or equal to	Median	Samples Analyzed	Range Minimum	Range Maximum
ND means Not Detected by analytical method used										
Physical Parameters										
Hardness as $CaCO_3$	mg/L	**41.45**	30	36.4	57.3		46.5	35	39.8	55
Carbon, Total Organic	mg/L as C	**1.85**	8	1.5	2.6		1.8	73	0.85	4.04
Colour, True	TCU	**3**	37	< 2	19		< 2	135	< 2	11
pH	pH units	Not tested in 2024					7.35	4	7.2	8.1
Turbidity	NTU	**0.325**	60	0.1	3.7	1 MAC and ≤ 5 AO	0.3	379	<0.14	11.3
Water Temperature	°C	**12.5**	229	3.5	22.5	15°C AO	12	1300	4	23.5
Microbial Parameters										
Indicator Bacteria										
Coliform, Total	CFU/100 mL	**< 1**	169	< 1	1	0 MAC	< 1	1138	<1	209
E. coli	CFU/100 mL	**< 1**	169	< 1	< 1	0 MAC	< 1	1138	<1	1
Hetero. Plate Count 7 day	CFU/1 mL	Not tested in 2025				No Guideline Required	30	58	<10	310
Algal Toxins										
Microcystin (Abraxis)	ug/L	Not tested in 2025				1.5	<1	41	<1	<1
Anatoxin A	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Cylindrospermopsin	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-RR	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-YR	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Microcystin-LR	ug/L	Last analyzed in 2013				1.5 MAC	Last analyzed in 2013			
Microcystin-LA	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Nodularin	ug/L	Last analyzed in 2013					Last analyzed in 2013			
Disinfectants										
Disinfectants										
Chlorine, Free Residual	mg/L as Cl2	**0.82**	235	0.2	2	No Guideline Required	0.91	2165	0.06	4.2
Chlorine, Total Residual	mg/L as Cl_2	Not tested in 2025				No Guideline Required	1.12	1208	0.18	2.9
Disinfection By-Products										
Trihalomethanes (THMs)										
Bromodichloromethane	ug/L	**14**	8	9.1	16		20.5	81	<0.1	31.9
Bromoform	ug/L	**< 1**	8	< 1	< 1		< 1	80	< 0.1	4.2
Chloroform	ug/L	**26**	8	14	34		39.5	83	15.3	90.2
Chlorodibromomethane	ug/L	**5.1**	8	3.5	5.3		8.1	81	<0.1	15.5
Total Trihalomethanes	ug/L	**45.5**	8	27	54	100 MAC	52.5	78	29.3	128
Haloacetic Acids (HAAs)										
HAA5	ug/L	Not tested in 2023				80 MAC	19.5	20	9.21	37.7
Metals										
Aluminum	ug/L as Al	**14.7**	30	< 3	45.6	2900 MAC / 100 OG	16.4	35	< 3	58.8
Antimony	ug/L as Sb	**< 0.5**	30	< 0.5	< 0.5	6 MAC	< 0.5	35	< 0.5	< 0.5
Arsenic	ug/L as As	**0.37**	30	0.21	0.78	10 MAC	0.3	35	0.22	0.48
Barium	ug/L as Ba	**13.2**	30	8.7	17.8	100 MAC	10.8	35	6.7	14.3
Beryllium	ug/L as Be	**< 0.1**	30	< 0.1	0.14		< 0.1	35	< 0.1	< 0.1
Bismuth	ug/L as Bi	**< 1**	30	< 1	< 1		< 1	35	< 1	< 1
Boron	ug/L as B	**< 50**	30	< 50	61	5000 MAC	< 50	35	< 50	68
Cadmium	ug/L as Cd	**< 0.01**	30	< 0.01	0.136	7 MAC	< 0.01	35	< 0.01	< 0.01
Calcium	mg/L as Ca	**11.2**	30	9.35	18.6	No Guideline Required	16	35	11.1	19.9
Chromium	ug/L as Cr	**< 1**	30	< 1	< 1	50 MAC	< 1	35	< 1	< 1
Cobalt	ug/L as Co	**< 0.2**	30	< 0.2	< 0.2		< 0.2	35	< 0.2	< 0.2
Copper	ug/L as Cu	**4.305**	30	1.7	66.7	2000 MAC / ≤ 1000 AO	3.48	35	2.02	8.89
Iron	ug/L as Fe	**51.85**	30	< 5	172	≤ 100 AO	91.7	35	40.9	591
Lead	ug/L as Pb	**0.215**	30	< 0.2	2.16	5 MAC	0.24	35	< 0.2	1.35
Lithium	ug/L as Li	**7.65**	30	6.3	8.6		7.3	19	6.4	8.2
Magnesium	mg/L as Mg	**3.025**	30	1.32	3.58	No Guideline Required	1.74	35	0.95	3.16
Manganese	ug/L as Mn	**27.2**	30	1.2	172	120 MAC / ≤ 20 AO	2.4	35	< 1	57.9
Molybdenum	ug/L as Mo	**< 1**	30	< 1	< 1		< 1	35	< 1	< 1
Nickel	ug/L as Ni	**< 1**	30	< 1	< 1		< 1	35	< 1	< 1
Potassium	mg/L as K	**0.843**	30	0.758	0.993		0.799	35	0.721	0.925
Selenium	ug/L as Se	**< 0.1**	30	< 0.1	0.16	50 MAC	< 0.1	35	< 0.1	< 0.1
Silicon	ug/L as Si	**2035**	30	1240	2960		2020	35	1190	3740
Silver	ug/L as Ag	**< 0.02**	30	< 0.02	< 0.02	No Guideline Required	< 0.02	35	< 0.02	< 0.02
Sodium	mg/L as Na	**21.55**	30	20	23.8	≤ 200 AO	21.9	35	19.9	24.1
Strontium	ug/L as Sr	**103**	30	88	119	7000 MAC	101	35	89.3	115
Sulphur	mg/L as S	**3.9**	30	3.2	4.7		4.4	35	3.3	5.7
Tin	ug/L as Sn	**< 5**	30	< 5	< 5		< 5	35	< 5	< 5
Titanium	ug/L as Ti	**< 5**	30	< 5	< 5		< 5	35	< 5	< 5
Thallium	ug/L as Th	**< 0.01**	30	< 0.01	0.013		< 0.01	35	< 0.01	< 0.01
Uranium	ug/L as U	**< 0.1**	30	< 0.1	0.13	20 MAC	< 0.1	35	< 0.1	< 0.1
Vanadium	ug/L as V	**< 5**	30	< 5	< 5		< 5	35	< 5	< 5
Zinc	ug/L as Zn	**11.95**	30	< 5	93.1	≤ 5000 AO	7.2	35	< 5	60.7
Zirconium	ug/L as Zn	**< 0.1**	30	< 0.1	< 0.1		< 0.1	35	< 0.1	< 0.5

2.621 - Highland/Fernwood Water (SSI)

Capital Projects - Financial Summary

Updated @ 31/12/2025

Year	Project#	Capital Plan#	Status	Capital Project Description	Total Project Budget	Spending		Funding Sources		Total Funding in Place
						Expenditure Actuals	Remaining Spending	CRF	CWF	
2019	CE.677.7501	19-01	Open	Water Intake and Screen	227,000	189,260	37,740	84,000	143,000	227,000
2019	CE.699.4501	19-03	Closed	Safe Work Procedures	17,000	7,441	9,559	17,000		17,000
2021	CE.735.4501	21-02	Closed	Power generation equipment - Design	59,000	53,548	5,452	59,000		59,000
2023	CE.677.4601	22-03	Closed	Safety Improvement for H&F WTP	40,000	21,402	18,598	-	40,000	40,000
2024	CE.677.4602	24-06	Open	Spares, Chlorine & Coagulent Pumps	12,000	164	11,836	12,000		12,000
2024	CE.677.4603	24-04	Closed	Safety chain replacement WTP	13,000	12,696	304	13,000		13,000
2024	CE.677.4502	21-01	Open	Public Engagement High/Fern Water	50,000	81	49,919	50,000		50,000
2024	CE.677.5101	24-05	Open	Reservoir 1. Repair roof top railing	15,500	18,086	(2,586)*	15,500		15,500
				Totals	**433,500**	**302,678**	**130,822**	**250,500**	**183,000**	**433,500**

**Temporary deficit at 2025 year end. $8,000 additional funding in 2026.*

CAPITAL REGIONAL DISTRICT

HIGHLAND / FERNWOOD WATER
Statement of Operations (Unaudited)
For the Year Ended December 31, 2025

		2025	2024
Revenue			
Transfers from government		87,756	77,630
User Charges		435,886	412,749
Sale - Water		68,676	76,599
Other revenue from own sources:			
Interest earnings		377	567
Transfer from Operating Reserve Fund		10,623	20,000
Other revenue		4,074	1,756
Total Revenue		607,392	589,301
Expenses			
General government services		19,365	17,462
Contract for Services		30,122	14,103
CRD Labour and Operating costs		266,304	268,014
Debt Servicing Costs		34,405	34,431
Supplies		40,311	31,362
Other expenses		88,545	92,048
Total Expenses		479,052	457,420
Net revenue (expenses)		128,340	131,881
Transfers to own funds:			
Capital Reserve Fund		128,340	76,076
Operating Reserve Fund		-	55,805
Annual surplus/(deficit)		-	-
Accumulated surplus/(deficit), beginning of year		-	-
Accumulated surplus/(deficit), end of year	$	-	-

CAPITAL REGIONAL DISTRICT

HIGHLAND / FERNWOOD WATER
Statement of Reserve Balances (Unaudited)
For the Year Ended December 31, 2025

	Capital Reserve 2025	2024
Beginning Balance	116,563	111,444
Transfer from Operating Budget	128,340	76,076
Transfer from Completed Capital Projects	18,724	43,356
Transfer to Capital Project	(13,770)	(117,500)
Interest Income	6,293	3,187
Ending Balance	256,150	116,563

	Operating Reserve 2025	2024
Beginning Balance	141,568	101,101
Transfer from Operating Budget	-	55,805
Transfer to Operating Budget	(10,623)	(20,000)
Interest Income	6,345	4,662
Ending Balance	137,290	141,568

CAPITAL REGIONAL DISTRICT

HIGHLAND WATER
Statement of Operations (Unaudited)
For the Year Ended December 31, 2025

		2025	2024
Revenue			
Transfers from government		8,544	31,726
Other revenue from own sources:			
Interest earnings		59	116
MFA Debt Reserve Earning		63	4,087
Total Revenue		8,666	35,928
Expenses			
General government services		23	27
Debt Servicing Costs		13,825	30,834
Total Expenses		13,848	30,861
Net revenue (expenses)		(5,182)	5,068
Annual surplus/(deficit)		(5,182)	5,068
Accumulated surplus/(deficit), beginning of year		5,240	172
Accumulated surplus/(deficit), end of year	$	58	5,240

CAPITAL REGIONAL DISTRICT

FERNWOOD WATER
Statement of Operations (Unaudited)
For the Year Ended December 31, 2025

		2025	2024
Revenue			
Transfers from government		5,034	14,621
Other revenue from own sources:			
Interest earnings		63	41
MFA Debt Reserve Earning		2,160	1,653
Total Revenue		7,257	16,315
Expenses			
General government services		11	13
Debt Servicing Costs		6,993	14,281
Total Expenses		7,004	14,294
Net revenue (expenses)		253	2,021
Annual surplus/(deficit)		253	2,021
Accumulated surplus/(deficit), beginning of year		2,091	70
Accumulated surplus/(deficit), end of year	$	2,344	2,091

Making a difference...together

REPORT TO HIGHLAND FERNWOOD WATER SERVICE COMMISSION
MEETING OF TUESDAY, JUNE 23, 2026

SUBJECT **Summary Manganese Water Quality Event 2025**

ISSUE SUMMARY

To review the Highland Fernwood manganese water quality event in 2025.

BACKGROUND

At the November 7, 2025 meeting of the Fernwood and Highland Water Service Commission the following motion was passed.

"That the Fernwood and Highland Water Service Commission direct staff prepare a report to the Commission summarizing the manganese water quality event in 2025 and measures already undertaken and planned to mitigate such events including notification of the public"

In early July 2025, residents in the Highland/Fernwood Water System began reporting discoloured water. The Capital Regional District (CRD) investigated immediately and determined that sediment from a recirculation line in the water treatment plant had entered the system. While the initial issue was aesthetic, follow-up testing on July 4 showed that manganese levels in the treated water were above Health Canada's Maximum Acceptable Concentration. In consultation with Island Health, the CRD issued a Water Quality Advisory (WQA) on July 11.

Over the following weeks, the CRD undertook extensive work to identify the cause and restore water quality. Seasonal lake conditions and the depth of the newly installed raw water intake were found to be contributing factors. The CRD completed multiple rounds of sampling, engaged engineering specialists, and evaluated several treatment options. A temporary intake drawing water from a shallower part of St. Mary Lake was designed, approved by Island Health, and installed. The entire distribution system then underwent a multi-day flushing process to remove accumulated manganese.

Once flushing was complete, the CRD collected system-wide samples and submitted them for expedited laboratory analysis. In early August, results confirmed that manganese levels had returned below Health Canada's health limit. Island Health approved lifting the Water Quality Advisory, and the WQA was officially rescinded on August 5, 2025.

The connection to the permanent intake was restored in November 2025. The temporary intake is available for reconnection if required while the CRD develops a long term plan to prevent future manganese issues. Monthly dissolved oxygen and metals sampling for three intake locations at various depths is underway to support this work.

IMPLICATIONS

Financial Implications
The response to elevated manganese levels in the Highland Fernwood Water System in 2025 resulted in approximately $40,000 in unplanned operating expenditures. These costs were incurred to investigate the cause of the event, protect public health, restore water quality, and meet regulatory and public notification requirements.

The majority of costs occurred during the initial July–August 2025 manganese response, totaling approximately $34,000, and included:

- $14,000 for external technical support for the newly constructed intake
- $12,000 in Operations labour associated with system flushing, intensified sampling, and installation of a temporary intake (exclusive of Engineering staff time and reflective of significant overtime requirements)
- $4,000 in materials related to operational modifications and response measures
- $5,000 in sampling and laboratory costs for expedited water quality and metals testing

An additional approximately $6,000 in Operations labour costs was incurred during the November 2025 manganese response, associated with system flushing, clearwell cleaning, and follow-up sampling.

All costs were managed within existing operating budgets where possible; however, the event highlights the potential for unexpected water quality issues to result in increased operating expenditures. The experience underscores the value of proactive source water monitoring, intake management, and contingency planning to help reduce the financial impacts of future water quality events.

Environmental Implications
The manganese water quality event was driven by natural environmental conditions within St. Mary Lake rather than by contamination or anthropogenic pollution. Seasonal stratification of the lake during summer months resulted in oxygen-depleted conditions at greater depths, allowing manganese to be released from lake sediments into the raw water supply. The commissioning of a new, deeper intake inadvertently drew from this low oxygen zone, contributing to elevated manganese concentrations in treated water.

The incident highlights the sensitivity of drinking water sources to changing environmental conditions, particularly in surface water bodies subject to seasonal stratification and climate variability. No lasting environmental harm to St. Mary Lake or surrounding ecosystems has been identified as a result of this event. The installation of a temporary shallower intake and subsequent operational adjustments mitigated further manganese mobilization from anoxic sediments. Going forward, enhanced raw water monitoring, lake profiling, and intake management will be important tools to better understand and respond to seasonal lake dynamics, thereby reducing the risk of similar occurrences in the future.

Service Delivery Implications
The manganese event had a significant short-term impact on service delivery for customers in the Highland Fernwood Water Service Area. While water supply continuity was maintained throughout the event, the Water Quality Advisory restricted how water could be safely used, particularly for infant consumption, and required customers to avoid drinking discoloured water. This resulted in increased customer inquiries, concerns, and demand for timely, clear public communication.

Operationally, the event required substantial staff resources across Water Operations, Engineering, Water Quality, Corporate Communications, and customer support. Actions included expanded water quality sampling and laboratory testing, system flushing, investigation of raw water source conditions, engagement of external technical expertise, installation of a temporary intake, enhanced monitoring and reporting to Island Health.

The incident also underscored the importance of proactive risk assessment when commissioning new infrastructure and the need for clear internal escalation pathways when initial aesthetic concerns evolve into health-based water quality issues. Lessons learned from this event are informing improvements to engineering and operational decision-making, water quality monitoring programs, emergency response protocols, and public notification practices to strengthen service reliability and customer confidence.

CONCLUSION

The Fernwood–Highland manganese water quality event in 2025 evolved from an initially aesthetic issue into a health based advisory as new sampling data became available and elevated concentrations were confirmed within the drinking water system. Through coordinated efforts between Operations, Engineering, Environmental Services, Communications, and Island Health, the Capital Regional District was able to identify the cause of the issue, implement interim operational controls, and restore water quality to meet Health Canada guidelines.

The event highlighted the influence of seasonal source water conditions and intake depth on raw water quality, as well as the operational and financial impacts associated with responding to emerging water quality risks. The installation of a temporary intake and subsequent system flushing proved effective in reducing manganese concentrations and supported the timely rescission of the Water Quality Advisory.

Lessons learned from this event are informing ongoing work to strengthen source water monitoring, intake management, operational decision-making, and public communication. These measures aim to reduce the likelihood and impact of similar events in the future, while continuing to support safe, reliable drinking water service for Highland Fernwood customers.

RECOMMENDATION

There is no recommendation, this report is for information only.

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