



Notice of Meeting and Meeting Agenda Regional Water Supply Commission

Wednesday, September 28, 2022

11:30 AM

6th Floor Boardroom
625 Fisgard St.
Victoria, BC V8W 1R7

MEMBERS:

L. Szpak (Chair); G. Baird (V. Chair); N. Chambers; Z. De Vries; S. Dubow; S. Duncan;
C. Graham; K. Harper; M. Hicks; B. Isitt; K. Kahakauwila; G. Logan; J. Loveday; R. Mersereau;
T. Morrison; J. Rogers; C. Stock; T. St-Pierre; N. Taylor; R. Wade; G. Young; E. Wood Zhelka

1. TERRITORIAL ACKNOWLEDGEMENT

2. APPROVAL OF THE AGENDA

3. ADOPTION OF MINUTES

3.1. [22-503](#) Minutes of the July 20, 2022 Regional Water Supply Commission Meeting

Recommendation: That that minutes of the July 20, 2022 Regional Water Supply Commission meeting be adopted.

Attachments: [Draft Minutes July 20, 2022](#)

4. CHAIR'S REMARKS

5. PRESENTATIONS/DELEGATIONS

The public are welcome to attend Commission meetings in-person.

Delegations will have the option to participate electronically. Please complete the online application for "Addressing the Board" on our website located here <https://www.crd.bc.ca/about/board-committees/addressing-the-board> and staff will respond with details.

Alternatively, you may email your comments on an agenda item to the Regional Water Supply Commission at iwsadministration@crd.bc.ca.

Delegation requests must be received no later than 4:30 p.m. two calendar days prior to the meeting.

6. WATER ADVISORY COMMITTEE REPORT

6.1. [22-570](#) Water Advisory Committee Draft Minutes of September 1, 2022

Recommendation: There is no recommendation, the draft minutes are for information only.

Attachments: [Draft Minutes, September 1, 2022, Water Advisory Committee](#)

7. COMMISSION BUSINESS**7.1. [22-567](#) Regional Water Service 2023 Operating and Capital Budget**

Recommendation: The Regional Water Supply Commission recommends that the Capital Regional District Board:

1. Approve the 2023 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2023 wholesale water rate of \$0.7698 per cubic metre;
3. Approve the 2023 agricultural water rate of \$0.2105 per cubic metre;
4. Direct staff to balance the 2022 actual revenue and expense on the transfer to the water capital fund; and
5. Direct staff to amend the Water Rates Bylaw accordingly.
(WA)

Attachments: [Staff Report: RWS 2023 Operating and Capital Budget](#)
[Appendix A: 2023 Regional Water Supply Service Budget](#)
[Appendix B: Long Term Debt Obligations Summary](#)
[Appendix C: Agricultural Water Volumes and Rate Payments for 2011 – 2021](#)
[Appendix D: Wholesale Water Rate History and Projection](#)

7.2. [22-504](#) Summary of Recommendations from Other Water Commissions

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

Attachments: [Summary of Recommendations](#)

7.3. [22-505](#) Water Watch Report

Recommendation: There is no recommendation. The Water Watch Report is for information only.

Attachments: [Water Watch Report](#)

8. CORRESPONDENCE**8.1. [22-568](#) Correspondence: 2022 Master Plan Feedback**

Recommendation: There is no recommendation, the correspondence is for information only.

Attachments: [Correspondence: 2022 Master Plan Feedback](#)

9. NOTICE(S) OF MOTION**10. NEW BUSINESS**

11. ADJOURNMENT

Voting Key:

NWA - Non-weighted vote of all Commissioners

NWP - Non-weighted vote of participants (as listed)

WA - Weighted vote of all Commissioners

WP - Weighted vote of participants (as listed)

Meeting Minutes

Regional Water Supply Commission

Wednesday, July 20, 2022

11:30 AM

6th Floor Boardroom
625 Fisgard St.
Victoria, BC V8W 1R7

PRESENT:

L. Szpak (Chair); G. Baird (V. Chair); S. Brice for N. Taylor; N. Chambers;
Z. De Vries (EP); S. Dubow (EP); S. Duncan (EP); C. Graham (EP); K. Harper (EP);
M. Hicks (EP); B. Isitt; J. Loveday (EP); C. Plant for R. Mersereau; J. Rogers (EP);
R. Wade (EP); G. Young; E. Wood Zhelka (EP)

STAFF:

R. Lapham, CAO; T. Robbins, General Manager, Integrated Water Services;
A. Constabel, Senior Manager, Watershed Protection; G. Harris, Senior Manager, Environmental
Protection; I. Jesney, Senior Manager, Infrastructure Engineering; S. Irg, Senior Manager, Water
Infrastructure Operations; Tracy Urquhart, Communications Coordinator; Tanya Duthie, Manager,
Administration Services; D. Dionne, Administrative Coordinator; M. Risvold, Committee and
Administrative Clerk (recorder)

REGRETS: K. Kahakauwila; G. Logan; R. Mersereau; T. Morrison; C. Stock;
T. St-Pierre; N. Taylor

EP = Electronic Participation

The meeting was called to order at 11:32 am

1. TERRITORIAL ACKNOWLEDGEMENT

Commissioner Chambers provided the territorial acknowledgement.

2. APPROVAL OF THE AGENDA

MOVED by Commissioner Baird and **SECONDED** by Commissioner Isitt,
That the agenda be approved as circulated.

CARRIED

3. ADOPTION OF MINUTES

3.1. [22-456](#) Adoption of June 15, 2022 Minutes

Attachments: [Draft Minutes June 15, 2022](#)

MOVED by Commissioner Baird and **SECONDED** by Commissioner Isitt,
That the Minutes of the July 15, 2021 meeting be adopted.

CARRIED

4. CHAIR'S REMARKS

The Chair provided the following remarks:

- Toured the Watershed with Vice-Chair Baird
- Acknowledged the land, climate change and development in the area
- Thanked staff and the Commission for their hard work

The Chair extended remarks to Vice-Chair Baird who acknowledged staff for all their hard work.

5. PRESENTATIONS/DELEGATIONS

There were none.

6. GENERAL MANAGER'S REPORT

6.1. Water Supply Outlook [Verbal]

T. Robbins provided a water supply outlook and advised the Sooke Lake Reservoir is currently at 92 percent of the storage capacity, and advised the daily demand is quite low compared to 2021. Staff are continuing to monitor the potential revenue impacts due to the lower demand.

6.2. Next Meeting: September 28, 2022 (Budget Meeting)

T. Robbins advised there will not be a meeting held in August. The next meeting will be held Wednesday, September 28, 2022 to present the 2023 operating and capital budget.

Discussion ensued regarding:

- Budget timelines
- Potential of having preliminary budget reviewed by the new Commission
- Full orientation will be provided to the new Commission which will include budget overview

7. COMMISSION BUSINESS

7.1. [22-457](#) Summary of Feedback - 2022 Regional Water Supply Master Plan

Attachments: [Staff Report: Summary of Feedback - 2022 RWS Master Plan](#)
[Appendix A: Public Engagement Report](#)
[Appendix B: Sample letter to First Nations Chief and Council](#)
[Appendix C: WAC Response to the 2022 Water Master Plan](#)
[Appendix D: WAC Addl Detailed Comments on the 2022 Water M. Plan](#)
[Supplemental 1: 2022 Master Plan Report-Complete](#)
[Supplemental 2: Malahat Nation Email Correspondence](#)

T. Robbins spoke to item 7.1.

Discussion ensued regarding:

- Volume of material generated through backwash process
- Potential to deal with pH, alkalinity and copper
- Deep northern water intake in Sooke Lake
- Onsite storage
- Pump station, filtration plant, transmission system changes
- Risks associated with not filtering water
- Approximate cost for building plant
- Master plan public engagement
- Professional report from consultant
- Project priorities
- Letter from Malahat First Nation

T. Robbins read correspondence received from Malahat First Nation.

Staff responded to questions from the commission regarding:

- The need for a new pump station with a filtration plant
- Further review regarding the filtration requirement

MOVED by Commissioner Chambers and **SECONDED** by Commissioner Harper,

That the Regional Water Supply Commission:

1. Approve the 2022 Master Plan; and
2. Recommend that the Capital Regional District Board approve the 2022 Master Plan.

Discussion ensued regarding:

- Applying precautionary plan
- Due diligence and planning
- Opportunity for jobs

MOVED by Commissioner Young and **SECONDED** by Commissioner Isitt,
That the recommendation be amended to add after the words 2022 Master Plan, the following wording “, as a guide to future water supply planning” in both Items 1. and 2.

CARRIED

Motion Arising:

MOVED by Commissioner Isitt and **SECONDED** by Commissioner Chambers, That the recommendation to approve be postponed to the next meeting to allow Commissioners the opportunity to read the 2022 Master Plan, to ensure that the Plan is published on a Commission agenda and to allow the Malahat Nation the opportunity to comment on the plan.

FAILED

Opposed: Baird, Brice, Chambers, Duncan, Graham, Harper, Hicks, Rogers Szpak, Young

MOVED by Commissioner Chambers and **SECONDED** by Commissioner Harper,

That the Regional Water Supply Commission:

1. Approve the 2022 Master Plan, as a guide to future water supply planning; and
2. Recommend that the Capital Regional District Board approve the 2022 Master Plan, as a guide to future water supply planning.

CARRIED

Opposed: Isitt

The Commission requested that the Master Plan be appended to the Board Agenda Package.

- 7.2. [22-468](#) Bylaw No. 4509, "Capital Regional District Greater Victoria Water Supply Area Protection Bylaw No. 1, 2000, Amendment Bylaw No. 2, 2022"

Attachments: [Staff Report: Bylaw 4509 Amendment Bylaw to Bylaw No. 2804](#)

[Appendix A: Bylaw 4509 Amendment Bylaw](#)

[Appendix B: Bylaw 2804 Unofficial Redline Showing Changes](#)

A. Constabel spoke to item 7.2.

MOVED by Commissioner Baird and **SECONDED** by Alternate Commissioner Plant,

That the Regional Water Supply Commission recommends to the Capital Regional District board:

1. That Bylaw No. 4509, " Capital Regional District Greater Victoria Water Supply Area Protection Bylaw No. 1, 2000, Amendment Bylaw No. 2, 2022", be introduced and read a first, second and a third time.
2. That Bylaw No. 4509 be adopted.

CARRIED

- 7.3. [22-469](#) Greater Victoria Water Supply Area 2022 Public and School Tours Summary

Attachments: [Staff Report: GVWSA 2022 Public and School Tours Summary](#)

A. Constabel spoke to item 7.3.

7.4. [22-459](#) Summary of Recommendations from Other Water Commissions

Attachments: [Summary of Recommendations from Other Water Commissions](#)

A. Constabel spoke to item 7.4.

7.5. [22-460](#) Water Watch Report

Attachments: [Water Watch Report](#)

8. NEW BUSINESS

There was none.

9. ADJOURNMENT

MOVED by Alternate Commissioner Plant and **SECONDED** by Commissioner Young,
That the meeting be adjourned at 1:20 pm.
CARRIED

CHAIR

SECRETARY



Making a difference...together

MINUTES OF A MEETING OF THE Water Advisory Committee, held Thursday, September 1, 2022 at 1:30 pm, Goldstream Conference Room, 479 Island Highway, Victoria, BC

PRESENT: Commissioners: Heather Thompson (Chair); G. Baird; C. Davis (EP); M. Doehnel; A. Fernandes (EP); T. Krawczyk; J. Rogers (EP); W. Scheuer; D. Timothy (EP); M. Turner (EP)
Staff: T. Robbins, General Manager; S. Irg, Senior Manager, Integrated Water Operations; D. Dionne, Administrative Coordinator (Recorder)
REGRETS: E. Cote (Vice Chair); J. Caradonna; C. Nowakowski (Island Health); J. Todd

EP = Electronic Participation

The meeting was called to order at 1:32 pm.

1. TERRITORIAL ACKNOWLEDGEMENT

The Chair provided the Acknowledgement.

2. APPROVAL OF AGENDA

Addition to Agenda:

Item 6.1.1: Handout: Summary of Feedback – 2022 Regional Water Supply Master Plan

MOVED by G. Baird, **SECONDED** by W. Scheuer,
That the agenda be approved as amended.

CARRIED

3. ADOPTION OF MINUTES

MOVED by T. Krawczyk, **SECONDED** by G. Baird,
That the minutes of the May 13, 2022 meeting be adopted.

CARRIED

4. CHAIR'S REMARKS

The Chair advised that this would be her last meeting as she and her family are moving. She expressed her appreciation for being elected as Chair and thanked the Committee for their work over this past year.

5. PRESENTATIONS/DELEGATIONS

There were no presentations or delegations.

6. COMMITTEE BUSINESS

6.1. Update on the 2022 Master Plan – Engagement Results and Plan Approval [Verbal]

6.1.1. Handout: Summary of Feedback – 2022 Regional Water Supply Master Plan

T. Robbins provided an overview of the staff report that was presented to the Regional Water Supply Commission on July 20, 2022. He noted that the report included the Water Advisory Committees report and detailed comments.

Staff responded to questions from the Committee:

- Filtration technology and the possibility of taking advantage of new technologies prior to construction.
- The life expectancy of the current Ultraviolet (UV) plant; the reactors are being upgraded within the next two to three years.
- Sediment pond filtration for runoff water; Deception reservoir will operate almost as a sedimentation bed.
- The process for continued input and feedback as projects start to come online; project and budget approvals would be through the five-year budget and capital plan approvals.
- The Water Advisory Committee could play a consultation role on the upcoming projects.

6.2. Update on the Agricultural Water Rate Study [Verbal]

S. Irg provided the following updates:

- The agricultural water rate is funded through the Regional Water Supply operating budget, which funds the difference between the Municipal rate and the agricultural water rate.
- The current agricultural water rate has not changed since 2010.
- Stantec was retained to conduct a review of the current rate and conduct a rate model options study.
- There will be some stakeholder consultation, likely two engagement sessions, one with governing entities and the other would be the agricultural community.
- The objective is to determine a fair rate that supports farming that contributes to the region and a rate structure that encourages water conservation.
- Hoping to have the report finalized by early 2023 to be included in the 2024 budget approvals.
- There was a delay in starting this study primarily due to the effort that staff put into the First Nations Water Rate model which was a priority for 2022.

Discussion ensued:

- Water Advisory Committee's feedback and options were summarized for Stantec's consideration and provided good information and guidance.
- The Master Plan outlined agricultural water use as 3% of annual demand. Need to consider the importance of resiliency in food security for the region.
- Ensuring that the customers providing food and food crops are benefitting from the water rate.
- The Water Advisory Committee would like to be engaged as part of Stantec's consultation process.

- The uniqueness of the Capital Regional District’s subsidy model and that there has not been a similar study for comparison, staff were able to draw on some other examples from around BC to include for consideration.

M. Turner left the meeting

6.2.1. Study Scope and Schedule

Stantec’s scope and schedule was included for information.

6.2.2. Agricultural Water rate Working Group Recommendations

The Water Advisory Committee’s feedback was included as part of the Request for Proposals. A summary of the feedback and suggestions was also provided to Stantec.

6.2.3. Next Steps

The next steps are for Stantec to:

- Prepare stakeholder list and consultation plan
- Conduct stakeholder consultation

6.3. First Nations Water Rate Model – 2023 Implementation Plan [Verbal]

T. Robbins provided the following updates:

- Staff have been developing a First Nations water rate model.
- The Nations felt that the Regional Water Service wholesale water rates should apply to them the same as it does for Municipal governments.
- Staff are advancing implementation by applying the rate through Regional Water Supply service agreements and drafting the conveyance agreements, subject to Commission approval.
- The 2023 budget has been developed with the conveyance fee allowance included.

6.4 Summary of RWSC Recommendations

RECEIVED FOR INFORMATION

6.5 Water Watch Report

RECEIVED FOR INFORMATION

7. COMMITTEE MEMBERSHIP

7.1. Local Government Elections – October 15, 2022 [Verbal]

The local elections are on October 15, 2022. Once the elections have taken place, Municipalities will appoint Directors to the Capital Regional District Board and standing committees, including the Regional Water Supply Commission. As such the Water Advisory Committee will not likely meet again this year.

7.2. Expiring Terms – December 31, 2022 [Verbal]

Staff noted that members may serve up to three, two-year terms on the Committee. All members whose terms are coming to an end are eligible to serve another term. Staff will be advertising for vacancies. Members wishing to serve another term should submit their interest to Denise at their earliest convenience. Likewise, any member wishing not to continue for another term should also submit their intention. Staff will follow up with an email to all members.

7.2.1. Committee Members – Two-Year Term

- Wilf Scheuer, Commercial & Industrial, Commercial, Institutional (ICI) (ending first term)
- Celine Davis, Resident/Ratepayer (ending first term)
- David Timothy, Fish Habitats (ending second term)
- Jeremy Caradonna, Scientific (ending first term)
- Tayler Krawczyk, Agriculture (ending second term)

7.2.2. Water Commission Representatives – Appointed Annually by Each Water Commission

(Following the establishment of new councils, commission appointments and commission elections)

- John Rogers, Juan de Fuca Water Distribution Commission Representative
- Gord Baird, Regional Water Supply Commission Representative
- Mike Doehnel, Saanich Peninsula Water Commission Representative

8. NEW BUSINESS

C. Davis thanked the Chair for all her work on summarizing and coordinating the Committee's comments and report for the 2022 Master Plan, and for her work as Chair of the Committee this past year.

9. ADJOURNMENT

MOVED by Commissioner T. Krawczyk, **SECONDED** by Commissioner G. Baird,
That the September 1, 2022 meeting be adjourned a 2:57 pm.

CARRIED

CHAIR

SECRETARY

DRAFT



**REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, SEPTEMBER 28, 2022**

SUBJECT Regional Water Service 2023 Operating and Capital Budget

ISSUE SUMMARY

To provide an overview of the draft 2023 Regional Water Supply Service budget, highlighting the changes from the 2022 budget and the proposed 2023 budget figures. The report generally follows the information provided in the attached draft budget document (Appendix A).

BACKGROUND

The draft 2023 Regional Water Supply Service budget has been prepared for the Regional Water Supply Commission’s (Commission) consideration. Although the Capital Regional District (CRD) Board received the 2023 provisional budget on September 21, 2022, the Commission will make budget recommendations to the CRD Board for final budget approval in March 2023. The budget recommendations are also necessary to establish the wholesale water rate and approve the rate by year end through adopting a rate bylaw. As in previous years, the draft 2023 Regional Water Supply Service budget has been prepared considering the CRD Board’s 2023 service planning and financial expectations, which include identifying opportunities to realign or reallocate resources and seek potential efficiencies between departments and services, reviewing service levels and adjustments related to regulatory compliance, and undertaking infrastructure improvements and upgrades to maintain service levels within the region. The following sets out the key components of the budget.

2022 Year End Financial Projections

Year end revenue and expenditure projections have been established and estimated variances are summarized as follows:

Budget Item	Variance (\$)	Variance (%)
Supply System operating expenditures	-\$160,870	-1%
Agricultural water rate funding	\$0	0%
Capital fund transfers	\$479,431	4.56%
Debt servicing - principal and interest expenditures	\$0	0%
Revenue	\$318,560	0.87%

The lower than budgeted operating expenditures were primarily due to labour costs associated with delays/deferrals in backfilling vacant staff positions during the year. The additional revenue is a result of higher water demand than budgeted due to outdoor demand during the late summer. It is proposed to transfer the revenue surplus to the capital reserve fund and reduce the borrowing requirement in 2023.

2023 Budget

Rate Base

The rate base for 2023 has increased by \$3,771,063 from 2022. This increase relates to physical plant additions, including the final capitalization of the Lubbe Dam improvements and Sooke Lake Intake Tower Screen replacement. The changes in physical plant and work in progress are listed on page 3 of the budget document and are used to project the 2022 year-end total physical plant value and determine the 2023 rate base.

Revenue Requirement

The revenue requirement for 2023 increased by \$2,179,540. This is resulting from an increase in operational expenses of \$1,657,994 (explained further below), an increase in depreciation expenses of \$498,746, net of expired depreciation on existing assets, and an increase in the return on the rate base of \$22,800.

Operating Budget

The 2023 operating budget reflects an inflationary increase in non-discretionary expenses such as negotiated wage/salary increases, corporate support service allocation increases, and other operating expense adjustments such as chemical and electricity costs, and vehicle costs. The net core 2023 operating budget increase is \$587,995, plus an additional budget request for a one-time expenditure in the amount of \$150,000 for field sampling/consulting services to establish baseline water quality and hydrology data in the Leech River (year four of five-year funding).

The budgets for drinking water quality sampling, testing and reporting, as well as the cross-connection control and demand management programs for the Regional Water Supply Service are included in the overall operating budget.

Operating budget forecasts for 2024 to 2027 are presented for information.

As it is anticipated that the Regional Water Supply Service will become the service provider for some First Nations in 2023, the budget has been prepared to reflect 'conveyance fee' payments, in the amount of \$870,000, that would fund operating expenses for those water systems required to convey water from the Regional Water Supply system to First Nations Reserve boundaries across Greater Victoria. The conveyance fee payments are subject to the completion of water service agreements with the participating Nations and operating agreements with the 'conveyors' that could include the Juan de Fuca Water Distribution Service, the Saanich Peninsula Water Service, the District of Central Saanich and the District of North Saanich.

Capital Budget

There are a number of capital projects planned for 2023 with a total value of \$37,623,000, including \$17,727,250 in carry forward projects, most of which are in-stream, multi-year projects such as the Butchart Dam No. 5 project, continuing dam safety related capital work including instrumentation integration and upgrades, the Transmission Mains No. 3 and No. 4 segment replacement project, the Goldstream Water Treatment Plan ultraviolet system replacement project, and the Watershed Field Office building project. There is also \$1,810,000 in projects

cost-shared with the Juan de Fuca Water Distribution Service (pages 10 to 45 of the budget document). The new projects in 2023, aside from the carry forward projects, include further study work (feasibility and options analysis) related to the 2022 Master Plan projects: deep northern intake, pumpstation, and raw water pipeline to the Head Tank; Goldstream Reservoir connector; and filtration plant.

A five-year capital plan is presented for information. The value of the five-year (2023 to 2027) capital plan is currently \$200,571,000, plus \$3,660,000 in projects cost-shared with the Juan de Fuca Water Distribution Service.

Capital and Debt Expenditures

The 2023 capital expenditures will be partially funded through a transfer to the water capital fund budgeted at \$12,302,104, with the balance funded from existing cash reserves and borrowed funds. See pages 10 and 11 of the budget document for the funding source summary. \$1,104,504 of this transfer is funded by a return of the Municipal Finance Authority of BC deposit held for debt expiring in 2023. 2023 debt expenditures for existing debt servicing are budgeted to be \$7,690,985. Debt servicing expenditures will decrease by \$601,942 over 2022 due to reduced interest payments on debt issues maturing in 2023. Additional projected water sales revenue and corresponding capital reserve fund transfer will reduce the borrowing needs in 2023. A new loan authorization in the amount of \$46,000,000 was approved in 2021 to allow continued partial funding of the five-year capital plan. The upcoming debt retirements on existing borrowings are summarized as follows:

Loan Number	Retirement Date	Loan Amount
LA3419-103	April 2023	\$7,000,000
LA3451-103	April 2023	\$60,000,000
LA3419-104	November 2023	\$8,000,000
LA3419-105	June 2024	\$9,000,000
LA3419-106	October 2024	\$1,000,000
LA3661-112	October 2025	\$6,500,000
LA3661-116	April 2026	\$1,500,000
LA3661-118	April 2027	\$4,500,000
LA3661-124	April 2028	\$1,700,000
LA3902-131	April 2030	\$3,000,000
LA3902-137	April 2031	\$1,500,000
LA3902-145	April 2033	\$5,000,000
LA4382-15X	April 2038 to 2040	\$23,000,000

The long-term debt obligations are summarized on the attached graphs (Appendix B).

When assessing key financial health indicators, the service maintains an affordable level of debt over the next five years. While the debt funding for capital investment over the next five years does exceed the 40% benchmark for years 2024 to 2026, the percentage of revenue dedicated to debt costs is forecast to be between 9% and 20%, which is less than an annual benchmark rate of 25%. A summary indicator table is provided below:

Year	% Revenue for Debt	Capital Funded by Debt
2023	19.3%	25.5%
2024	9.2%	40.9%
2025	10.8%	50.7%
2026	13.9%	54.6%
2027	16.2%	27.4%

A \$393,653 transfer to the vehicle/equipment replacement fund is planned in 2023. The reserve fund balance is estimated at \$ 2,762,670 at year-end 2022 (See reserve schedule – Page 46 of the budget document).

Agricultural Water Rate Funding

The total budget for the agricultural water rate funding has been increased by \$50,000 to \$1,750,000 . The 2023 agricultural water rate has been maintained at the 2022 rate of \$0.2105 per cubic metre. The Regional Water Supply agricultural water rate budget funds the difference between the municipal retail water rate and the CRD agricultural water rate. As directed by the Commission, an agricultural water rate review and options study is being undertaken in 2022/2023. The consultation phase of the study will involve several stakeholders and is expected to begin later this year. It is anticipated that any changes to the rate or rate methodology resulting from the study would take effect in 2024.

A summary of the agricultural water volumes and agricultural water rate payments for 2011 to 2021 is attached for information (Appendix C).

Water Demand

Total water demand across the Region has generally continued to increase year over year, recently due to the continued rate of development and growth. This trend is expected to result in actual demand exceeding budget demand in 2022; the 2022 year-end demand is projected to be 450,000 cubic metres over budget at 49,450,000 cubic metres.

The recommended 2023 water rate has been calculated using a budget demand of 49,500,000 cubic metres (Page 7 of the budget document), which is 500,000 cubic metres more than the volume used in the 2022 budget.

Proposed 2023 Wholesale Water Rate

The recommended wholesale water rate takes into consideration the revenue required to meet operating and capital expenditures, including debt obligations and the budget demand volume established for 2023. The proposed 2023 wholesale rate is \$0.7698 per cubic metre, a 4.99% increase over the 2022 rate. The increase in annual bulk water cost for the average household using 235 cubic metres per year would be \$8.60 (Page 8 of the budget document).

Wholesale Water Rate History and Projection

The wholesale water rate history and projection is attached (Appendix D). The rates may be adjusted in the future to reflect actual revenue and expenditure circumstances and water demand volumes.

ALTERNATIVES

The Regional Water Supply Commission recommends that the Capital Regional District Board:

1. Approve the 2023 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2023 wholesale water rate of \$0.7698 per cubic metre;
3. Approve the 2023 agricultural water rate of \$0.2105 per cubic metre;
4. Direct staff to balance the 2022 actual revenue and expense on the transfer to the water capital fund; and
5. Direct staff to amend the Water Rates Bylaw accordingly.

Alternative 2

The Regional Water Supply Commission recommends that the Capital Regional District Board:

1. Approve the 2023 Operating and Capital Budget and the Five Year Capital Plan as amended;
2. Approve the 2023 wholesale water rate as amended (amended rate);
3. Approve the 2023 agricultural water rate of \$0.2105 per cubic metre;
4. Direct staff to balance the 2022 actual revenue and expense on the transfer to the water capital fund; and
5. Direct staff to amend the Water Rates Bylaw accordingly.

IMPLICATIONS

If the proposed budget is amended, the implications could vary depending on how the budget is amended and the impact on specific initiatives (i.e., new initiatives), on-going operations, or the capital work program. 'One-time' reductions in reserve fund contributions could be considered by the Commission to help mitigate the budget and rate increases, but additional capital financing could result in the longer term. Although, staff have not recommended amending the agricultural water rate for 2023, the rate and rate methodology is under review this year and the Commission will consider the rate review recommendations in 2023.

Any changes in the recommended wholesale water rate would have to be incorporated in the Juan de Fuca Water Distribution Service and Saanich Peninsula Water Service budgets and rates.

CONCLUSION

The draft 2023 Regional Water Supply Service budget has been prepared for the Regional Water Supply Commission's consideration. The budget was prepared considering the Commission and CRD Board's 2023 service planning and financial expectations. A proposed increase in operating and capital funding combined with an adjusted revenue budget, is resulting in a recommended wholesale water rate of \$0.7698 per cubic metre, a 4.99% increase over the 2022 rate.

RECOMMENDATIONS

The Regional Water Supply Commission recommends that the Capital Regional District Board:

1. Approve the 2023 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2023 wholesale water rate of \$0.7698 per cubic metre;
3. Approve the 2023 agricultural water rate of \$0.2105 per cubic metre;
4. Direct staff to balance the 2022 actual revenue and expense on the transfer to the water capital fund; and
5. Direct staff to amend the Water Rates Bylaw accordingly.

Submitted by:	Ted Robbins, BSc., CTech., General Manager, Integrated Water Services
Concurrence:	Larisa Hutcheson, PEng., General Manager, Parks & Environmental Services
Concurrence:	Nelson Chan, MBA, FCPA, FCMA, Chief Financial Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

ATTACHMENTS

- Appendix A: 2023 Regional Water Supply Service Budget
- Appendix B: Long Term Debt Obligations Summary
- Appendix C: Agricultural Water Volumes and Rate Payments for 2011 – 2021
- Appendix D: Wholesale Water Rate History and Projection

CAPITAL REGIONAL DISTRICT

2023 BUDGET

Regional Water Supply

COMMISSION REVIEW

Service: 2.670

Regional Water Supply

Commission: Regional Water Supply

DEFINITION:

To finance, install, operate and maintain a water supply local service in the Capital Regional District, as per the Water Supply Local Service Establishment Bylaw No. 2537.

The establishment and operation of a Regional Water Supply Commission is done by Bylaw No. 2539.

SERVICE DESCRIPTION:

Regional Water Supply is responsible for the water supply, treatment and transmission system for the Greater Victoria region, providing wholesale water to municipalities that operate municipal distribution systems. The service administration and operation is provided by the Integrated Water Services Department.

PARTICIPATION:

City of Victoria
District of Oak Bay
District of Saanich
Township of Esquimalt
District of Central Saanich

Town of Sidney
District of North Saanich
Town of View Royal
City of Colwood
City of Langford

District of Metchosin
District of Sooke
Juan de Fuca Electoral Area
District of Highlands

MAXIMUM LEVY:

No stated limit in establishment bylaw and no ability to requisition.

MAXIMUM CAPITAL DEBT:

Authorized: Pre Consolidated MFA Loan Authorizations - Regional Water Supply Water Works Facilities		\$137,700,000
Borrowed:		\$91,400,000
Remaining: Expired		<u>\$46,300,000</u>
Authorized: LA Bylaw No. 3451 - Regional Water Supply Land Acquisition		\$60,000,000
Borrowed:		\$60,000,000
Remaining:		<u>\$0</u>
Authorized: LA Bylaw No. 3902 - Regional Water Supply Water Works Facilities	2014	\$12,500,000
Borrowed:		\$9,500,000
Remaining: Expired		<u>\$3,000,000</u>
Authorized: LA Bylaw No. 4382 - Regional Water Supply Water Works Facilities	2021	\$46,000,000
Borrowed:		\$0
Remaining: Active		<u>\$46,000,000</u>

FUNDING:

Costs are recovered through the sale of bulk water.

Change in Budget 2022 to 2023 Service: 2.670 Regional Water Supply	Total Expenditure	Comments
2022 Budget	36,539,270	
Change in Labour:		
	361,900	Labour charges (salaries and overhead)
Total Change in Labour	<u>361,900</u>	
Other Changes:		
Transfer to Capital	1,215,977	Increase in Capital Fund and Reserve transfers
	1,104,504	One-time Capital Fund transfer, funded by return of MFA deposit on expiring debt
Conveyance fee for service to First Nations	870,000	
Vehicles	260,842	
Supplies - chemicals	117,150	
Contract for Services	150,000	IBC 10d-3 2023 Watershed Hydrology Monitoring
Contract for Services	(150,000)	IBC 10d-3 2022 Watershed Hydrology Monitoring
Principal & Interest Payments	(601,942)	Interest savings for debt retirement of LA3419-1030 of \$7 million; LA3451-1030 for \$60 million
Agriculture Water Rate Funding	50,000	
Other Costs	(1,897)	
Total Other Changes	<u>3,014,634</u>	
2023 Budget	39,915,804	
Summary of % Expense Increase		
Conveyance fee for service to First Nations	2.4%	
One-time capital transfer, funded by MFA deposit	3.0%	
Change between capital and debt funding	1.7%	
Balance of increase	2.2%	
% expense increase from 2022:	9.2%	

Overall 2022 Budget Performance
(expected variance to budget and surplus treatment)

Small favourable water sales variance of \$318,600 (0.9%) as 2022 demand forecast is slightly higher than budgeted, but below prior year actual results due to more temperate spring and summer weather. There is an additional favourable operating variance of \$160,800 (0.4%) largely related to temporary staff vacancies. The net surplus of \$510,000 will be transferred to the services' Water Capital Fund.

Rate Base for 2023 Revenue Year

	<u>2021</u> <u>Application</u>	<u>2022</u> <u>Application</u>	<u>End of 2022</u> <u>for '23 Applic.</u>	<u>Change</u>	
Wholesale System					
Physical Plant	\$ 231,156,835	\$ 233,870,414	\$ 235,712,793	\$ 1,842,378	Note 1
Construction Work In Progress	8,055,763	9,949,386	11,673,660	1,724,274	Note 1
Cash Working Capital	2,088,652	2,188,278	2,392,688	204,410	
Inventory	<u>225,000</u>	<u>225,000</u>	<u>225,000</u>	<u>-</u>	
Total Wholesale Rate Base	\$ 241,526,250	\$ 246,233,078	\$ 250,004,141	\$ 3,771,063	

Note 1: Refer to the Schedule of Change in Physical Plant & work in Progress for details.

Revenue Requirements for 2023 Year

	2021	2022	2023	
	<u>Application</u>	<u>Application</u>	<u>Application</u>	<u>Change</u>
Wholesale				
Operations & maintenance	\$ 16,941,286	\$ 17,749,367	\$ 19,407,361	\$ 1,657,994
Depreciation	6,694,087	7,591,503	8,090,249	\$ 498,746
Return on rate base	<u>11,252,300</u>	<u>11,166,400</u>	<u>11,189,200</u>	<u>\$ 22,800</u> Note 1
Subtotal of above	\$ 34,887,673	\$ 36,507,270	\$ 38,686,810	\$ 2,179,540
Non-rate revenue including unaccounted water revenue	<u>(582,060)</u>	<u>(582,060)</u>	<u>(582,060)</u>	<u>\$ -</u>
Total wholesale	\$ 34,305,613	\$ 35,925,210	\$ 38,104,750	\$ 2,179,540

Note 1: Return on rate base is calculated with reference to the long term Canada bond rate & the average debt rate.

Schedule of Change in Physical Plant & Work In Progress

Wholesale

Projected Asset Additions	Projected Assets Capitalized	Projected Construction Work In Progress (CWIP)	Projected Assets CWIP
Lubbe Dam Safety Improvements	\$ 3,034,580	Butchart Dam #5 Remediation	\$ 1,258,798
Sooke Intake Screens Condition Assessment/Replacement	2,136,222	Meter Replacement	1,257,008
Goldstream Gate Upgrade	1,819,603	Major Main Repairs	899,669
Sooke Lake Intake Tower Replacement	1,788,763	Dam Safety Review	847,428
Regional Water Supply Master Plan	500,000	Post Disaster Emergency Water Supply	779,195
Sooke River Road Disinfection Facility Upgrade	425,000	Japan Gulch Treatment Plant Upgrades	772,781
Sooke Spillway Actuator	411,951	Goldstream Dam Instrumentation Improvements	600,000
Kapoor Tunnel Repairs	405,582	Cathodic Protection Program	500,000
Dam Improvements	300,000	Radio Upgrades	381,393
Post Disaster Emergency Water Supply	296,272	Goldstream Field Operations Centre	366,435
Valve Chamber Upgrades	282,803	Sooke Dam Safety Improvements	350,775
Gravel Crushing	245,393	Pump Stations	350,000
SCADA	235,000	Sooke Lake Hydrodynamic Model	280,304
Spillway Gates Repair	199,691	SCADA Integration	245,396
Reservoir Log Boom Replacement	196,231	Strategic Asset Management Plan	188,937
Dam Breach Assessment	173,281	Lab Information Management System	180,000
Watershed Security Enhancements	150,000	SCADA Repairs and Equipment Replacement	150,000
Watershed Culvert Replacement	150,000	Goldstream Treatment Plant Safety Improvements	150,000
Sooke Spillway Gate Standby Power	150,000	Sooke Lake Dam Spillway Hoist	150,000
FlowCam Imaging System	139,506	Regional Water Supply System - DCC Program	149,579
Meter Replacement	110,640	Condition and Vulnerability Assessment	149,461
Historic Powerhouse Roof Replacement	93,277	High Level Output Valve Replacement	149,284
Water Supply Eqpt Upgrades	85,000	Water Quality Main Lab Renovation	134,751
Transmission System Component Replacement	80,000	Hydraulic Capacity Assessment	131,602
Meter Station Backflow Installation	75,000	Risk and Resilience Assessment	119,774
Leech Tunnel Intake Stop Log Replacement	75,000	Treatment Plant Emergency Automation	104,324
Major Main Repairs	54,293	Transmission system component upgrades	100,000
Corrosion Protection	50,000	Goldstream Treatment Plant Drainage Improvements	100,000
Humpback Overflow Channel Assessment	50,000	Goldstream Chlorination System Removal	99,653
Bulk Water Connection Backflow Study	50,000	Sooke Intake Screens	99,184
Other Projects (23 minor projects under \$50k)	605,733	Critical Equip Storage Building	97,475
Total projected assets capitalized	<u>\$ 14,368,821</u>	Sooke and Goldstream Lakes Assessment	60,000
Less: current year's depreciation	(6,104,857)	GVWSA Road Rehabilitation	58,348
Less: change in prior year forecast addition estimates, & disposals	(6,421,586)	Water Quality Database Upgrade	50,000
Change in Physical Plant	<u>\$ 1,842,378</u>	West Leech Road Design	50,000
		Other Projects (14 minor projects under \$50k)	312,106
		Projected CWIP	<u>\$ 11,673,660</u>
		Less Prior year's projected CWIP	(9,949,386)
		Change in CWIP	<u>\$ 1,724,274</u>

Schedule A
Asset Useful Life Assignments - PSAB

<u>Classes:</u>	<u>Code</u>	<u>Asset Categories</u>	<u>Useful Life, Years</u>
Land	LAND	Land & Rights of Way * (Note 1)	N/A
Building	BLDG	Building, Permanent	50
	BLOT	Building, Temporary/ Portable	20
	BLFX	Building fixture (<i>sprinklers</i>)	20
Equipment	BOAT	Boats & Marine Equipment	10
	COMP	Computer Equipment (<i>includes software</i>)	5
	ELEC	Electronic Equipment(<i>hydromet, weather stn eqpt</i>)	5
	FIRE	Fire & Safety Equipment	10
	GENT	Generator	20
	HYDR	Hydrants and Standpipes	20
	HYDY	Hydrology	10
	MTRS	Meters	20
	OFFE	Office Equipment	5
	OFFF	Office Furniture	10
	SCDA	SCADA Equipment	10
	SCRN	Intake Screens/Membranes (<i>stop logs</i>)	20
	SHOP	Shop Equipment	10
	TELE	Telecommunication Eqpt (<i>radios, phone systems</i>)	10
	WEQP	Water Works Eqpt(<i>W.Quality lab, Wshed eqpt</i>)	10
	NEW GRP	Weather stn & communication tower	15
Vehicle	VEHC	Vehicles	8
Engineering	BRDG	Bridge	50
Structure	CANL	Canal	50
	DAMS	Dam Structures	100
	PIPE	Pipelines, includes Vaults, Kiosks, Valve chambers	75
	PIPF	Pipelines, fittings	20
	PLPV	Parking lot paved	40
	PSEQ	Pump Station Equipment	20
	PSHS	Pump Station Housing	50
	PRVS	Valves, Flushes & PRV's	20
	RDGR	Roads gravel	20
	RDPV	Roads paved	40
	RESS	Reservoirs (steel & concrete)	50
	REST	Reservoirs (tower/tank)	35
	TANK	Storage tank	40
	TELP	Telephone and Power Lines	50
	TUNN	Tunnel, Culvert and Diversions	50
	WATP	Water Treatment Plant	25
	WELL	Wet well/ Well	50
Other Assets	CSTU	Capital Management Studies	5
	FENC	Fences	15
	LIMP	Land & Yard Improvements	20

Note 1: Land is not depreciated so a useful life assignment is not applicable.

2023 Demand Estimate

Wholesale Demand

<u>Years</u>	<u>Actual Demand cu.metre</u>	<u>Budgeted Demand cu.metre</u>
2017	46,515,000	45,000,000
2018	48,300,036	45,000,000
2019	47,734,121	46,500,000
2020	48,730,475	48,000,000
2021	51,797,082	48,000,000
2022	49,450,000*	49,000,000
2023 Demand Estimate	49,500,000	

* Projected consumption for 2022

Summary of Wholesale Water Rates

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>Change</u>
Wholesale water rate						
Unit cost per cu.m.	\$0.6775	\$0.6968	\$0.7148	\$0.7332	\$0.7698	\$0.0366

**Wholesale Water Rate Increase
Impact on Residential Water Bill**

Average Annual Consumption : 235.0 cubic metres

<u>Charge for Twelve Months Consumption</u>		<u>Annual Charge</u>	<u>2023 Annual Change \$</u>
Average Consumption	2022 Year	\$ 172.30	
	2023	\$ 180.90	\$ 8.60
Half Average Consumption	2022 Year	\$ 86.15	
	2023	\$ 90.45	\$ 4.30
Twice Average Consumption	2022 Year	\$ 344.60	
	2023	\$ 361.81	\$ 17.20

APPENDIX A

Program Group: CRD-Regional Water Supply

SUMMARY

			2023 BUDGET REQUEST				FUTURE PROJECTIONS			
	2022 BOARD BUDGET 2	2022 ESTIMATED ACTUAL 3	2023 CORE BUDGET 4	2023 ONGOING 5	2023 ONE-TIME 6	TOTAL (COL 4, 5 & 6) 7	2024 8	2025 9	2026 10	2027 11
GENERAL PROGRAM EXPENDITURES:										
WATERSHED PROTECTION	5,690,703	5,444,247	5,792,432	-	150,000	5,942,432	5,908,280	6,026,443	6,146,979	6,269,911
WATER MANAGEMENT	6,272,411	6,325,911	6,683,286	-	-	6,683,286	6,815,529	6,951,848	7,090,923	7,232,778
WATER QUALITY	1,862,117	1,857,755	1,925,729	-	-	1,925,729	1,964,252	2,003,521	2,043,605	2,084,474
CROSS CONNECTION	754,239	728,934	770,923	-	-	770,923	786,607	802,440	818,594	835,085
DEMAND MANAGEMENT	705,184	730,690	726,084	-	-	726,084	740,848	755,773	770,985	786,518
INFRASTRUCTURE ENGINEERING	496,982	494,982	527,884	-	-	527,884	538,440	549,219	560,201	571,409
FLEET OPERATION & MAINTENANCE	(314,181)	(314,181)	(393,653)	-	-	(393,653)	(497,590)	(563,409)	(602,235)	(638,415)
CUSTOMER TECHNICAL SERVICES & GM SUPPORT *	581,912	620,158	604,677	-	-	604,677	617,406	630,401	643,631	657,177
TOTAL OPERATING EXPENDITURES	16,049,367	15,888,496	16,637,362	-	150,000	16,787,362	16,873,772	17,156,236	17,472,682	17,798,937
<i>Percentage increase over prior year's board budget</i>			3.66%			4.60%	0.51%	1.67%	1.84%	1.87%
CONVEYANCE FEE FOR SERVICE TO FIRST NATIONS	-	-	-	870,000	-	870,000	887,400	905,150	923,250	941,700
AGRICULTURAL WATER RATE FUNDING	1,700,000	1,700,000	1,750,000	-	-	1,750,000	1,800,000	1,850,000	1,900,000	1,950,000
			2.94%			2.94%	2.86%	2.78%	2.70%	2.63%
CAPITAL EXPENDITURES & TRANSFERS										
TRANSFER TO WATER CAPITAL FUND	10,152,385	10,662,226	11,197,600	-	1,104,504	12,302,104	17,450,000	19,100,000	20,400,000	23,800,000
TRANSFER TO EQUIPMENT REPLACEMENT FUND	314,181	314,181	393,653	-	-	393,653	497,590	563,409	602,235	638,415
TRANSFER TO DEBT RESERVE FUND	30,410	-	121,700	-	-	121,700	166,630	237,630	299,530	125,630
TOTAL CAPITAL EXPENDITURES & TRANSFERS	10,496,976	10,976,407	11,712,953	-	1,104,504	12,817,457	18,114,220	19,901,039	21,301,765	24,564,045
DEBT SERVICING										
DEBT - INTEREST & PRINCIPAL	8,292,927	8,292,927	7,690,985	-	-	7,690,985	3,800,836	4,811,482	6,690,276	8,760,522
TOTAL DEBT EXPENDITURES	8,292,927	8,292,927	7,690,985	-	-	7,690,985	3,800,836	4,811,482	6,690,276	8,760,522
DEFICIT TRANSFERRED TO FOLLOWING YR										
TRANSFER TO FOLLOWING YEAR DEFICIT CARRY FORWARD										
TOTAL EXPENDITURES	36,539,270	36,857,830	37,791,300	870,000	1,254,504	39,915,804	41,476,228	44,623,907	48,287,973	54,015,204
SOURCES OF FUNDING										
REVENUE - SALES	(35,926,800)	(36,256,740)	(37,087,540)	(870,000)	(150,000)	(38,107,540)	(40,727,538)	(43,804,217)	(47,406,383)	(53,307,514)
REVENUE - OTHER	(612,470)	(601,090)	(703,760)	-	(1,104,504)	(1,808,264)	(748,690)	(819,690)	(881,590)	(707,690)
TOTAL SOURCE OF FUNDING FROM OPERATIONS	(36,539,270)	(36,857,830)	(37,791,300)	(870,000)	(1,254,504)	(39,915,804)	(41,476,228)	(44,623,907)	(48,287,973)	(54,015,204)
TRANSFER FROM PRIOR YEAR	-	-	-	-	-	-	-	-	-	-
TRANSFER TO FOLLOWING YEAR SURPLUS CARRY FORWARD										
TOTAL SOURCES OF FUNDING	(36,539,270)	(36,857,830)	(37,791,300)	(870,000)	(1,254,504)	(39,915,804)	(41,476,228)	(44,623,907)	(48,287,973)	(54,015,204)
<i>Percentage increase over prior year's board budget</i>			3.43%			9.24%	3.91%	7.59%	8.21%	11.86%

**CAPITAL REGIONAL DISTRICT
FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2023 to 2027**

Service No.	2.670 Regional Water Supply	Carry Forward from 2022	2023	2024	2025	2026	2027	TOTAL
EXPENDITURE								
	Buildings	\$2,970,000	\$3,990,000	\$2,700,000	\$1,350,000	-	-	\$8,040,000
	Equipment	\$4,885,000	\$13,410,000	\$1,660,000	\$1,360,000	\$1,715,000	\$1,090,000	\$19,235,000
	Land	\$818,000	\$3,113,000	\$830,000	\$525,000	\$290,000	\$220,000	\$4,978,000
	Engineered Structures	\$7,965,000	\$15,795,000	\$28,450,000	\$37,975,000	\$47,375,000	\$34,305,000	\$163,900,000
	Vehicles	\$1,089,250	\$1,315,000	\$843,000	\$630,000	\$775,000	\$855,000	\$4,418,000
		\$17,727,250	\$37,623,000	\$34,483,000	\$41,840,000	\$50,155,000	\$36,470,000	\$200,571,000
SOURCE OF FUNDS								
	Capital Funds on Hand	\$14,302,000	\$23,988,000	\$11,340,000	\$16,710,000	\$18,390,000	\$19,615,000	\$90,043,000
	Debenture Debt (New Debt Only)	-	\$9,600,000	\$14,100,000	\$21,200,000	\$27,390,000	\$10,000,000	\$82,290,000
	Equipment Replacement Fund	\$885,250	\$995,000	\$843,000	\$630,000	\$775,000	\$855,000	\$4,098,000
	Grants (Federal, Provincial)	\$40,000	\$40,000	\$7,200,000	\$2,300,000	\$3,600,000	\$6,000,000	\$19,140,000
	Donations / Third Party Funding	\$2,500,000	\$3,000,000	\$1,000,000	\$1,000,000	-	-	\$5,000,000
	Reserve Fund	-	-	-	-	-	-	-
		\$17,727,250	\$37,623,000	\$34,483,000	\$41,840,000	\$50,155,000	\$36,470,000	\$200,571,000

**CAPITAL REGIONAL DISTRICT
FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2023 to 2027**

Service No.	2.670/2.680 Regional Water Supply & JDF Wate	Carry Forward from 2022	2023	2024	2025	2026	2027	TOTAL
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EXPENDITURE

Buildings	\$0	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
Equipment	\$1,100,000	\$1,730,000	\$530,000	\$330,000	\$330,000	\$330,000	\$340,000	\$3,260,000
Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineered Structures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vehicles	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<hr/>								
	\$1,100,000	\$1,810,000	\$610,000	\$410,000	\$410,000	\$410,000	\$420,000	\$3,660,000

SOURCE OF FUNDS

Capital Funds on Hand	\$1,100,000	\$1,810,000	\$610,000	\$410,000	\$410,000	\$420,000	\$420,000	\$3,660,000
Debenture Debt (New Debt Only)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment Replacement Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grants (Federal, Provincial)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Donations / Third Party Funding	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Reserve Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<hr/>								
	\$1,100,000	\$1,810,000	\$610,000	\$410,000	\$410,000	\$420,000	\$420,000	\$3,660,000

CAPITAL REGIONAL DISTRICT
5 YEAR CAPITAL PLAN
2023 - 2027

<p>Project Number Project number format is "yy-##" "yy" is the last two digits of the year the project is planned to start. "##" is a numerical value. For example, 23-01 is a project planned to start in 2023. For projects in previous capital plans, use the same project numbers previously</p>	<p>Capital Project Description Briefly describe project scope and service benefits. For example: "Full Roof Replacement of a 40 year old roof above the swimming pool area; The new roofing system meets current energy standards with an expected service life of 35 years".</p>	<p>Carryforward from 2022 Input the carryforward amount from the 2022 capital plan that is remaining to be spent. Forecast this spending in 2023 to 2027.</p>	<p>Project Drivers Maintain Level of Service = Project maintains existing or improved level of service. Advance Board or Corporate Priority = Project is a Board or Corporate priority. Emergency = Project is required for health or safety reasons. Cost Benefit = Project provide economic benefit to the organization.</p>
<p>Capital Expenditure Type Study - Expenditure for feasibility and business case report. New - Expenditure for new asset only Renewal - Expenditure upgrades an existing asset and extends the service ability or enhances technology in delivering that service Replacement - Expenditure replaces an existing asset</p>	<p>Total Project Budget Provide the total project budget, even if it extends beyond the 5 years of this capital plan.</p>	<p>Funding Source Codes Debt = Debenture Debt (new debt only) ERF = Equipment Replacement Fund Grant = Grants (Federal, Provincial) Cap = Capital Funds on Hand Other = Donations / Third Party Funding Res = Reserve Fund STLoan = Short Term Loans WU - Water Utility If there is more than one funding source, use additional rows for the project.</p>	<p>Long-term Planning Master Plan / Servicing Plan = Plan that identifies new assets required to meet future needs. Asset Management Plan / Sustainable Service Delivery Plan = Integrated plan that identifies asset replacements based on level of service, criticality, condition, risk, replacement costs as well as external impacts. Replacement Plan = Plan that identifies asset replacements based primarily on asset age and/or asset material/type.</p>
<p>Capital Project Title Input title of project. For example "Asset Name - Roof Replacement", "Main Water Pipe Replacement".</p>	<p>Asset Class L - Land S - Engineering Structure B - Buildings V - Vehicles</p>	<p>Cost Estimate Class Class A (±10-15%) = Estimate based on final drawings and specifications; used to evaluate tenders. Class B (±15-25%) = Estimate based on investigations, studies or preliminary design; used for budget planning. Class C (±25-40%) = Estimate based on limited site information; used for program planning. Class D (±50%) = Estimate based on little/no site information; used for long-term planning.</p>	

Service #: 2.670
Service Name: Regional Water Supply

SECTION 1: PROJECT DESCRIPTION AND BUDGET													
Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2022	2023	2024	2025	2026	2027	5 - Year Total
WATERSHED PROTECTION													
Planning													
17-01	Renewal	Historic Goldstream Powerhouse Building	Repairs of historic Goldstream Powerhouse building and work toward making the site accessible to the public	\$120,000	B	WU	-	\$20,000	-	\$50,000	-	-	\$70,000
17-01				\$376,000	B	Grant	-	-	-	\$300,000	-	-	\$300,000
18-10	Study	Species-at-Risk Wildlife Habitat	Assessments (office and field) and planning for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA.	\$185,000	L	WU	-	\$50,000	-	-	-	-	\$50,000
19-30	Study	Leech WSA Lakes/Tributaries Assessment	An assessment of the physical, chemical and biological parameters of the lakes in the Leech WSA.	\$75,000	L	WU	\$38,000	\$38,000	-	-	-	-	\$38,000
20-05	Renewal	Leech WSA Terrestrial Ecosystem Mapping & Wetland Classification/Mapping	Classification and mapping of terrestrial ecosystems and wetlands and integration with Sooke and Goldstream data.	\$180,000	L	WU	\$180,000	\$180,000	-	-	-	-	\$180,000
20-06	Study	Addressing mining in Leech WSA (impacts, agreements)	Funding to support work to reduce the impact of mining claims in the Leech WSA	\$60,000	L	WU	-	\$10,000	\$10,000	\$10,000	\$10,000	-	\$40,000
20-27	Study	GVWSA Forest Resilience - wildfire/forest modelling and forest management field trials	Modelling forest and wildfire risk under climate change scenarios & forest/fuel management field trials.	\$260,000	L	WU	\$120,000	\$120,000	\$50,000	-	-	-	\$170,000
20-28	Study	GVWSA Forest Resilience - Assessments of forest health and resilience	Field assessments to better understand current forest health and resilience.	\$230,000	L	WU	\$110,000	\$110,000	\$60,000	-	-	-	\$170,000
21-19	Study	Lakes Assessment Sooke and Goldstream WSAs	An assessment of the physical, chemical and biological parameters of the natural lakes in Sooke and Goldstream WSAs	\$75,000	L	WU	\$15,000	\$15,000	-	-	-	-	\$15,000
21-20	Study	West Leech Road	Plan followed by construction of a road to access the western portion of the Leech WSA.	\$320,000	L	WU	\$50,000	\$150,000	\$100,000	-	-	-	\$250,000
23-02	Renewal	GVWSA LiDAR Mapping	Detailed contour mapping of ground, vegetation and tree cover (3D scanning)	\$250,000	L	WU	-	\$200,000	\$50,000	-	-	-	\$250,000
22-04	Renewal	GVWSA Orthophotography	Annual contribution to capture of regional digital orthophotography for baseline mapping and monitoring.	\$95,000	L	WU	\$15,000	\$30,000	-	\$35,000	-	\$40,000	\$105,000
22-09	Study	GVWSA Powerlines Wildfire Risk Mitigation Plan	A detailed assessment, options and plan to reduce the risk of wildfire start from tree fall onto CRD powerlines in the GVWSA.	\$50,000	L	WU	\$40,000	\$40,000	-	-	-	-	\$40,000
22-10	New	GVWSA/RWS Educational Videos	Development of educational videos to address Regional Water Supply issues of interest to the public such as: wildfire risk and mitigation; climate change; water supply master plan update.	\$60,000	L	WU	\$30,000	\$30,000	\$30,000	-	-	-	\$60,000
23-05	Study	Spill Management Plan and Implementation	Review, assessment and re-development of a spill management plan for the GVWSA along with potential procurement of additional equipment or supplies.	\$50,000	L	WU	\$25,000	\$25,000	-	-	-	-	\$25,000
24-03	Study	Biosecurity Risk Assessment & Procedures	Assess GVWSA biosecurity risks and develop mitigating protocols/procedures	\$50,000	L	WU	-	-	\$50,000	-	-	-	\$50,000

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SECTION 1: PROJECT DESCRIPTION AND BUDGET													
Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2022	2023	2024	2025	2026	2027	5 - Year Total
Capital													
09-01	Renewal	Leech River Watershed Restoration	A 17 year project to restore the Leech WSA lands for water supply.	\$5,756,000	L	WU	\$125,000	\$325,000	\$200,000	\$200,000	-	-	\$725,000
16-01	Renewal	Replace Gatehouse at Goldstream Entrance	The GVWSA entry gatehouse at Goldstream is past end of life and is to be replaced with a purpose built structure with improved vehicle flow and security function	\$1,800,000	B	WU	\$20,000	\$20,000	-	-	-	-	\$20,000
16-06	Renewal	Goldstream IWS Field Office 1	Renewal of Water Quality field office/lab and equipment storage and Watershed Protection office, yard, training space and equipment storage, replacing longstanding temporary facilities.	\$3,200,000	B	WU	\$450,000	\$950,000	\$1,700,000	-	-	-	\$2,650,000
16-06				\$5,000,000	B	Other	\$2,500,000	\$3,000,000	\$1,000,000	\$1,000,000	-	-	\$5,000,000
17-02	New	Leech River HydroMet System	Installation of a network of hydrometeorological stations to collect water quantity and quality information for the Leech WSA.	\$540,000	E	WU	\$40,000	\$80,000	-	-	-	-	\$80,000
18-05	New	GVWSA Forest Fuel Management/FireSmart Activities	Implementation of forest fuel management and FireSmart actions in strategic locations for wildfire risk management in the GVWSA.	\$850,000	L	WU	\$10,000	\$110,000	\$100,000	\$100,000	\$100,000	\$100,000	\$510,000
19-02	New	Whiskey Creek Bridge Replacement (Sooke WSA)	Replacement of the existing undersized bridge with a longer and higher concrete structure.	\$330,000	S	WU	-	\$30,000	\$300,000	-	-	-	\$330,000
19-19	New	Hydromet Upgrades Sooke and Goldstream	Install additional hydrology monitoring sites on Sooke Lake Reservoir inflow streams and increase instrumentation on meteorological stations in Sooke and Goldstream watersheds.	\$230,000	E	WU	-	\$60,000	-	-	-	-	\$60,000
20-01	Replacement	Kapoor Main Mile 1 Bridge and Asphalt Upgrade	Replacement of the existing undersized culvert with a large bridge as well as subsequent 500 m road asphalt replacement.	\$610,000	S	WU	\$390,000	\$440,000	\$160,000	-	-	-	\$600,000
20-29	Renewal	GVWSA Gravel Crushing	Production of gravel at existing quarries in Sooke and Goldstream WSAs.	\$650,000	S	WU	-	-	\$100,000	-	\$200,000	-	\$300,000
21-26	New	Road Deactivation/Rehabilitation in the GVWSA	Deactivate or rehabilitate unneeded roads in the Sooke and Goldstream WSAs.	\$520,000	L	WU	\$60,000	\$100,000	\$100,000	\$100,000	\$100,000	-	\$400,000
21-27	New	Autogate Installations on Primary Access Routes	Install autogates on the main access routes where the Sooke Hills Wilderness Trail and E&N rail line cross to improve security	\$850,000	S	WU	-	-	\$350,000	-	-	-	\$350,000
22-02	New	Muckpile Bridge Supply and Install (Deception)	Replacement of undersized culverts with bridge which will allow for fish and western toad migration.	\$340,000	S	WU	-	\$15,000	-	\$325,000	-	-	\$340,000
23-04	Renewal	17S/Sooke Main Bridge Replacement	Undersized bridge replacement	\$315,000	S	WU	-	-	\$15,000	-	\$300,000	-	\$315,000
22-11	New	Additional Boom Anchors for Sooke Lake Reservoir debris boom	The log boom protecting the Sooke Lake Reservoir Intake Tower from floating woody debris is inadequately anchored and requiring two additional anchors.	\$60,000	E	WU	\$30,000	\$50,000	-	-	-	-	\$50,000
23-10	New	Work platform for Sooke Lake Reservoir	A towable work platform for conducting stationary on-water work activities such as boom and intake tower maintenance and spill response.	\$30,000	E	WU	-	\$30,000	-	-	-	-	\$30,000
23-11	New	Purchase and deployment of Second Wildfire Camera for Leech WSA, and analytic software	A secondary wildfire camera to monitor for heat and smoke signatures in the Leech WSA during fire season.	\$100,000	E	WU	-	\$50,000	\$50,000	-	-	-	\$100,000
23-23	Replacement	Brushcutting head for Excavator	The existing brushcutting head from the excavator used in roadside maintenance has reached end of life and requires replacement.	\$30,000	V	WU	-	\$30,000	-	-	-	-	\$30,000
WaterShed Protection Sub-Total				\$23,647,000			\$4,248,000	\$6,308,000	\$4,425,000	\$2,120,000	\$710,000	\$140,000	\$13,703,000
INFRASTRUCTURE ENGINEERING AND OPERATIONS													
Planning													
16-10	New	Post Disaster Emergency Water Supply	Identify and procure emergency systems for post disaster preparedness.	\$2,250,000	S	WU	-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
17-13	New	Asset Management Plan	Development of a plan to inform future areas of study and highlight critical infrastructure improvements.	\$400,000	S	WU	\$200,000	\$200,000	-	-	-	-	\$200,000
19-15	New	Hydraulic Capacity Assessment and Transient Pressure Analysis	Determine the existing level-of-service for the RWSC transmission system and conduct a transient pressure analysis	\$250,000	S	WU	\$100,000	\$100,000	-	-	-	-	\$100,000
20-08	Study	Regional Water DCC Program	Design of a Regional DCC Program	\$200,000	S	WU	\$50,000	\$50,000	-	-	-	-	\$50,000
20-10	Study	Condition & Vulnerability Assessment	Conduct a condition assessment of critical supply infrastructure and assess its possibility of risk.	\$200,000	S	WU	\$50,000	\$50,000	-	-	-	-	\$50,000
21-05	Study	Level of Service Agreement	From #19-15 & #20-11, develop level-of-service agreements for participating municipalities to address hydraulic capacity of infrastructure.	\$150,000	S	WU	\$150,000	\$150,000	-	-	-	-	\$150,000
23-12	Study	Project Delivery Strategy	Develop a strategy to deliver the identified projects from the 2022 RWS Master Plan.	\$200,000	S	WU	-	\$200,000	-	-	-	-	\$200,000
23-13	Study	Filtration Plant Planning & Design	Conduct a siting, conceptual design and detailed design for a filtration plant	\$16,300,000	S	WU	-	\$300,000	\$500,000	\$500,000	\$5,000,000	\$10,000,000	\$16,300,000
23-14	Study	Council Creek Crossing Hydrology Review	Conduct a hydrology review of the Council Creek crossing of water mains to ensure pipe resilience during high rainfall events.	\$100,000	S	WU	-	\$100,000	-	-	-	-	\$100,000
23-24	New	East-West Connector (Filtration Plant to District of Sooke)	Planning and Conceptual Design of the East- West Supply Main from the proposed filtration plant to the District of Sooke (identified in the 2022 Master Plan)	\$400,000	S	WU	-	-	-	-	\$200,000	\$200,000	\$400,000
23-25	New	Deep Northern Intake and Sooke Lake Pump Station	Planning and Design of the Deep Northern Intake and Sooke Lake Pump Station (identified in the 2022 Master Plan)	\$12,200,000	S	WU	-	\$600,000	\$600,000	\$3,000,000	\$4,000,000	\$4,000,000	\$12,200,000
23-26	New	Transmission Main - Sooke Lake Pump Station to Head Tank	Planning and Design of the Transmission Main from the Sooke Lake Pump Station to Head Tank (identified in the 2022 Master Plan)	\$3,400,000	S	WU	-	\$200,000	\$200,000	\$1,000,000	\$1,000,000	\$1,000,000	\$3,400,000
23-27	New	Gravity Main - Sooke Lake to Head Tank	Planning and Design of a Gravity Transmission Main (redundancy) from Sooke Lake to Head Tank (identified in the 2022 Master Plan)	\$1,400,000	S	WU	-	\$100,000	\$300,000	\$500,000	\$500,000	-	\$1,400,000
23-28	New	Goldstream Reservoir Connector	Planning and Design of the Goldstream Reservoir Connector transmission main	\$4,600,000	S	WU	-	\$100,000	\$500,000	\$2,000,000	\$2,000,000	-	\$4,600,000
Capital													\$0
18-07	New	Replacement of UV System	Replacement of the UV system at the Goldstream Water Treatment Plant	\$8,730,000	E	WU	\$2,850,000	\$8,300,000	-	-	-	-	\$8,300,000
18-08	Replacement	Bulk Supply Meter Replacement Program	Planned replacement of aging bulk meter replacement based upon a condition assessment and water audit.	\$2,050,000	E	WU	\$600,000	\$600,000	-	\$200,000	\$200,000	\$150,000	\$1,150,000
18-15	Renewal	Corrosion Protection Program	Study deficiencies in the current material protection and implement recommendations.	\$1,150,000	S	WU	-	\$150,000	\$150,000	\$150,000	\$150,000	-	\$600,000

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18-18	Replacement	Main No.3 Segment Replacement	Replacement of segments of Main No. 3 based upon previous studies.	\$15,600,000	S	WU	\$500,000	\$500,000	\$4,900,000	\$4,900,000	\$4,900,000	-	\$15,200,000
19-05	Renewal	Repairs - Kapoor Shutdown	Repair items such as defects in the Kapoor tunnel, replacement of critical valves, intake exterior inspection and actuator replacement while the Kapoor tunnel is shutdown.	\$600,000	S	WU	-	-	-	\$100,000	-	-	\$100,000
19-23	New	Critical Spare Equipment Storage & Pipe Yard	Plan, design and construct a critical equipment storage building.	\$1,100,000	S	WU	\$200,000	\$200,000	\$1,000,000	-	-	-	\$1,200,000
20-16	Replacement	Cecelia Meter Replacement	Replacement of the Cecelia billing meter as well as its enclosure.	\$1,000,000	S	WU	\$50,000	\$450,000	-	-	-	-	\$450,000
20-17	Replacement	Decommission & Conceptual Design of the Smith Hill Site	Plan for decommission the conceptual design for the replacement of the Smith Hill reservoir site.	\$1,300,000	S	WU	\$300,000	\$300,000	\$1,000,000	-	-	-	\$1,300,000
21-06	Replacement	Sooke Lake Dam Spillway Hoist and Stop Log Replacement	Replacement of the sluice gate spillway hoist and stop logs at Sooke Lake Dam.	\$775,000	E	WU	\$125,000	\$375,000	\$250,000	-	-	-	\$625,000
21-09	New	Goldstream Water Chlorination Gas System Removal	Plan and construct provisions for removal of chlorination system	\$200,000	S	WU	\$100,000	\$100,000	-	-	-	-	\$100,000
21-10	Replacement	SCADA Masterplan and System Upgrades	Update the SCADA Master Plan in conjunction with the Juan de Fuca Water Distribution, Saanich Peninsula Water and Wastewater, and Core Area Wastewater Services.	\$2,150,000	E	WU	\$500,000	\$800,000	\$300,000	\$300,000	\$300,000	\$300,000	\$2,000,000
21-11	Replacement	RWS Supply Main No. 4 Upgrade	Upgrade vulnerable sections of the RWS Supply Main No. 4 and Main No. 1 to a resilient system to better able to withstand a seismic event. Vulnerable sections are Concrete Cylinder pipe material which is susceptible to failure during a seismic event. This is part of project partnered with the Saanich Peninsula Water system.	\$33,900,000	S	WU	\$1,200,000	\$3,000,000	\$4,500,000	\$11,400,000	\$13,500,000	\$1,200,000	\$33,600,000
21-11			DMAF Grant portion, grant submitted November 2021.	\$14,800,000	S	Grant	-	-	\$1,200,000	\$2,000,000	\$3,600,000	\$6,000,000	\$12,800,000
22-14	New	Sooke River Intake Feasibility	A feasibility study for an intake from Sooke River to replace the Main No. 15 salmon fishery contribution, for a variety of reasons.	\$50,000	S	WU	\$50,000	\$50,000	-	-	-	-	\$50,000
22-15	New	Microwave Radio Upgrades	To provide a high bandwidth communications backbone to the RWS system, a microwave communications system will be installed.	\$1,100,000	S	WU	\$200,000	\$400,000	\$200,000	\$200,000	\$200,000	-	\$1,000,000
22-16	Renewal	Goldstream WTP Drainage Improvements	Construct drainage improvements for the Goldstream Water Treatment Plant and assess	\$200,000	S	WU	\$100,000	\$100,000	-	-	-	-	\$100,000
22-17	New	Goldstream WTP Safety Improvements	Construct employee and public safety improvements such as a trail notification system if there was an ammonia spill.	\$200,000	E	WU	\$50,000	\$50,000	-	-	-	-	\$50,000
23-15	New	Mt Tolmie Reservoir Security	Conduct public consultation with conceptual designs for site security required at the Mt Tolmie Reservoir	\$60,000	S	WU	-	\$10,000	\$50,000	-	-	-	\$60,000
23-16	Renewal	Humpback Channel Assessment and Upgrades	Hydraulically assess the Humpback Overflow channel and conduct a condition assessment of the culverts at the Gatehouse.	\$200,000	S	WU	-	\$200,000	-	-	-	-	\$200,000
23-17	Replacement	Main No. 4 - Mt Newton to Highway 17	Replacement of a approximately 1.9km of the Main No. 4 concrete pipe from Mt Newton and Central Saanich Road south to where it crosses Highway 17. A Strategic Priorities Fund grant has been applied to fund a portion of the works.	\$2,800,000	S	WU	-	\$2,800,000	-	-	-	-	\$2,800,000
23-17				\$6,000,000	S	Grant	-	-	\$6,000,000	-	-	-	\$6,000,000
25-03	Renewal	Transmission Main Upgrade Program	Identify, conceptually design, detail design and construct transmission main upgrades.	\$30,000,000	S	WU	-	-	-	\$10,000,000	\$10,000,000	\$10,000,000	\$30,000,000
23-29	Renewal	Mt. Tolmie Control Valve Replacement	Supply and installation of the Mt. Tolmie Reservoir Control Valve	\$300,000	E	WU	-	\$300,000	-	-	-	-	\$300,000
Infrastructure Engineering and Operations Sub-Total				\$166,315,000			\$7,375,000	\$21,035,000	\$21,850,000	\$36,450,000	\$45,750,000	\$33,050,000	\$158,135,000
DAM SAFETY PROGRAM													
Database)													
16-16	Renewal	Implications from Goldstream Dam Safety Review	Conduct dam improvements at the Goldstream dams that resulted for the Dam Safety Review and routine inspections (refer to the Dam Safety Database).	\$825,000	S	WU	\$200,000	\$275,000	\$75,000	-	-	-	\$350,000
16-17	Renewal	Butchart Dam No. 5 Remediation Planning & Construction	Phase 1 Rehabilitation (grouting) of Butchart Dam No. 5 and planning for Phase 2.	\$3,550,000	S	WU	\$2,000,000	\$50,000	\$1,950,000	-	-	-	\$2,000,000
17-25	Renewal	Implications from Sooke Lake Dam Safety Review	Conduct dam improvements at the Sooke Lake Dam that resulted from the Dam Safety Review and routine inspections (refer to the Dam Safety Database)	\$1,210,000	S	WU	\$400,000	\$400,000	-	-	-	-	\$400,000
18-19	New	Sooke Lake Dam - Instrumentation System Improvements	Complete dam performance instrumentation system/surveillance improvements for the Sooke Lake Dam.	\$1,800,000	S	WU	\$450,000	\$550,000	\$600,000	-	-	-	\$1,150,000
18-20	New	Sooke Lake Dam - Breach Risk Reduction Measures	Implement measures to reduce Sooke Lake Dam breach implications in the unlikely event of dam failure (refer to the NHC Consulting study).	\$600,000	S	WU	\$500,000	\$250,000	\$250,000	-	-	-	\$500,000
19-07	New	Integrate Dam Performance and Hydromet to SCADA	Integrate the dam safety instrumentation/surveillance (i.e. piezometers and weirs) and HydroMet stations to report to WIO through the existing SCADA system.	\$1,300,000	E	WU	\$400,000	\$600,000	\$200,000	\$200,000	\$200,000	-	\$1,200,000
19-09	New	Cabin Pond Dams Decommissioning	The Cabin Pond Dams (x2) have been retired from drinking water service, plan to decommission.	\$100,000	S	WU	-	-	\$100,000	-	-	-	\$100,000
19-12	New	Goldstream Dams Instrumentation Improvements	Conduct dam safety instrumentation/surveillance improvements (refer to report from Thurber Engineering).	\$600,000	S	WU	-	\$100,000	\$400,000	-	-	-	\$500,000
19-13	New	Dam Safety Instrumentation	The existing dam safety instrumentation/surveillance equipment is getting older and will need to be replaced/rehabilitated (does not include pending SCADA effort).	\$300,000	E	WU	\$150,000	\$250,000	\$50,000	-	-	-	\$300,000
20-19	Replacement	Goldstream System High Level Outlet Valve Replacements	The Goldstream and Butchart high level outlet valves have been identified as requiring replacement.	\$300,000	S	WU	\$150,000	\$250,000	-	-	-	-	\$250,000
21-03	New	Deception Dam - Dam Safety Review 2021 & Improvements	Conduct a Dam Safety Review and improvements for the Deception Dam.	\$1,800,000	S	WU	\$175,000	\$375,000	\$200,000	\$100,000	\$500,000	\$500,000	\$1,675,000
21-04	New	Saddle Dam - Dam Safety Review 2021 & Improvements	Conduct a Dam Safety Review and improvements for the Saddle Dam.	\$800,000	S	WU	\$100,000	\$200,000	\$150,000	\$200,000	\$75,000	\$75,000	\$700,000
21-21	Replacement	Goldstream Dams - 4 Low Level Gate Improvements	Logistics planning in 2022, installation in 2023	\$150,000	S	WU	\$150,000	\$150,000	-	-	-	-	\$150,000
22-08	New	Deception Dam Surveillance Improvements	Replace and supplement the Dam Safety Instrumentation at Deception Dam.	\$450,000	S	WU	\$150,000	\$150,000	\$300,000	-	-	-	\$450,000

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23-07	Renewal	Sooke Lake Dam Spillway and Gates Retrofit	Detail and construct seismic retrofits for the existing structures initially focusing on the spillway and gates structures.	\$450,000	S	WU	-	\$150,000	\$300,000	-	-	-	\$450,000
23-08	Study	Regional Watershed Dams – Flood Forecasting System	Update the existing flood forecasting system (WD4Cast) to a modern version including Standard Operating Procedures and training for staff.	\$300,000	S	WU	-	\$150,000	\$150,000	-	-	-	\$300,000
23-09	Study	Sooke Lake Dam - Dam Safety Review 2023	Conduct a Dam Safety Review to meet regulatory requirement.	\$200,000	S	WU	-	\$200,000	-	-	-	-	\$200,000
23-18	Renewal	Sooke Lake Dam Spillway Channel Improvements	Construct bank protection for the Sooke Spillway Channel and clear the seepage weir blockage.	\$700,000	S	WU	-	\$200,000	\$500,000	-	-	-	\$700,000
23-19	Renewal	Charters Dam - Implications from Dam Safety Review	Carry out recommendations from the 2022 Dam Safety Review for Charters Dam	\$200,000	S	WU	-	\$100,000	\$100,000	-	-	-	\$200,000
25-01	Study	Goldstream Dam - Dam Safety Review 2025 & Addressing Implications	Conduct a Dam Safety Review to meet regulatory requirement.	\$200,000	S	WU	-	-	-	\$200,000	-	-	\$200,000
25-02	Study	Probable Maximum Flood and Inflow Design Flood Updates	Update the previous edition from 2015 (recommended 10 year review cycle).	\$150,000	S	WU	-	-	-	\$150,000	-	-	\$150,000
Dam Safety Program Sub-Total				\$15,985,000			\$4,825,000	\$4,400,000	\$5,325,000	\$850,000	\$775,000	\$575,000	\$11,925,000
WATER QUALITY													
20-04	New	Sooke Lake HyDy Model Development	Critical data collection, model building+calibration, model utilization for 3 different scenarios	\$520,000	E	WU	-	\$120,000	\$120,000	-	-	-	\$240,000
22-06	Study	Sooke Lake Food Web Study	Assess the aquatic food web structure and create an inventory of fish and invertebrate species and distribution in Sooke Lake Reservoir - to be used as indicators of stream health	\$100,000	S	WU	\$50,000	\$50,000	-	-	-	-	\$50,000
23-06	Study	GVDWS Nitrification Study	Investigate nitrification occurrence and potential impacts on drinking water quality	\$50,000	S	WU	-	\$50,000	-	-	-	-	\$50,000
24-02	Replacement	Boat Motor Replacement with Electric Outboards (Sooke and Goldstream Boats)	50hp and 15hp motor replacement due to age and water quality concerns, large electric outboards are already available from Torqeedo for instance	\$60,000	E	WU	\$60,000	\$60,000	-	-	-	-	\$60,000
24-04	Study	Sooke Lake Drawdown Study	Investigate drawdown effects on Sooke Lake water quality and ecosystem impacts with max drawdown and determine a safe max drawdown level for SOL.	\$100,000	S	WU	-	-	\$100,000	-	-	-	\$100,000
25-04	Replacement	4 x multi-parameter field analyzers (SL1000)	Replace 4 multi-parameter (total/free/mono/ammonia) field analyzers	\$20,000	E	WU	-	-	-	\$20,000	-	-	\$20,000
26-01	New	2 x Floating Water Quality Sensor Platforms	To support and confirm water quality data in SOL for Deep Norther Intake, install 2 floating sensor platforms	\$200,000	E	WU	-	-	-	-	\$200,000	-	\$200,000
27-01	Study	Drinking Water Safety Plan Update	Review and update existing DWSP spreadsheet and risk registry. Consider planned system expansions/upgrades.	\$80,000	S	WU	-	-	-	-	-	\$80,000	\$80,000
Water Quality Sub-Total				\$1,130,000			\$110,000	\$280,000	\$220,000	\$20,000	\$200,000	\$80,000	\$800,000
ANNUAL PROVISIONAL													
17-27	Replacement	Watershed Bridge and Culvert Replacement	Replacement of small culverts and bridges throughout the GVWSA.	\$1,000,000	S	WU	-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
17-28	Replacement	Watershed Security Infrastructure Upgrade and Replacement	New, upgrade and replacement of security infrastructure in the GVWSA.	\$600,000	E	WU	-	\$150,000	\$150,000	\$100,000	\$100,000	\$100,000	\$600,000
17-29	Replacement	Water Supply Area Equipment Replacement	Hydrometeorological, fireweather and wildfire suppression equipment replacement.	\$575,000	E	WU	-	\$115,000	\$115,000	\$115,000	\$115,000	\$115,000	\$575,000
17-30	Replacement	Transmission Main Repairs	Emergency repairs to the transmission mains.	\$1,000,000	S	WU	-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
17-31	Replacement	Transmission System Components Replacement	Replacement and repair of transmission components.	\$400,000	S	WU	-	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
17-33	Replacement	Disinfection Equipment Parts Replacement	Replacement of incidental equipment and parts associated with the disinfection system.	\$1,000,000	E	WU	-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
17-34	Renewal	Supply System Computer Model Update	Annual update of the regional hydraulic model.	\$100,000	S	WU	-	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
19-16	Replacement	Dam Improvements	Items not covered by Dam Safety Reviews, but brought up in Dam Safety Inspections and Dam Safety Reviews and address item in the dam safety database/risk registry	\$1,500,000	S	WU	-	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$1,500,000
19-22	Replacement	SCADA Repairs & Equipment Replacement	Items not covered by the SCADA Replacement and SCADA Master Plan, but integral in maintaining the SCADA System and revenue meter system.	\$750,000	E	WU	-	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$750,000
21-15	Replacement	Corrosion Protection	Replace corrosion protection assets, such as coatings, for the transmission system when identified.	\$250,000	S	WU	-	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
21-16	Replacement	Valve Chamber Upgrades	Replace failing valves and appurtenances along the RWS supply system.	\$1,000,000	S	WU	-	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$1,000,000
21-17	Replacement	Water Quality Equipment Replacement	Replacement of water quality equipment for the water quality lab and water quality operations	\$250,000	E	WU	-	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
21-18	Renewal	LIMS support	Support for LIMS database	\$125,000	E	WU	-	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$125,000
23-20	Study	Land Exchange/Acquisition	Land surveys, appraisals to support decisions regarding land exchange to increase catchment area, buffer water supply areas and other possible land exchange and acquisition within the RWS system.	\$400,000	L	WU	-	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
Annual Provisional Sub-Total				\$8,950,000			\$0	\$1,820,000	\$1,820,000	\$1,770,000	\$1,770,000	\$1,770,000	\$8,950,000
CUSTOMER AND TECHNICAL SERVICES													
17-35	Replacement	Vehicle & Equipment Replacement (Funding from Replacement Fund)	This is for replacement of vehicles and equipment used by CRD Water Services for the day-to-day operation and maintenance of the supply system.	\$2,873,000	V	ERF	\$885,250	\$995,000	\$843,000	\$630,000	\$775,000	\$855,000	\$4,098,000
20-22	New	Vehicle for the Dam Safety Program	New Transit Van	\$100,000	V	WU	\$80,000	\$100,000	-	-	-	-	\$100,000
20-23	New	Vehicle for the CSE Support Program	New Transit Van	\$100,000	V	WU	\$62,000	\$100,000	-	-	-	-	\$100,000
21-30	New	Vehicle for Warehouse Operations	New pick up	\$90,000	V	WU	\$62,000	\$90,000	-	-	-	-	\$90,000
22-18	New	Electric Vehicle Charging Stations	7 Dual charging stations at 479 Island Hwy and 1 Dual charging station at the Watershed Protection FOC	\$80,000	E	WU	\$40,000	\$40,000	-	-	-	-	\$40,000
22-18					E	Grant	\$40,000	\$40,000	-	-	-	-	\$40,000

Service #: 2.670
 Service Name: Regional Water Supply

SECTION 1: PROJECT DESCRIPTION AND BUDGET													
Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2022	2023	2024	2025	2026	2027	5 - Year Total
23-21	New	EV Charging Stations Electrical Infrastructure	Electrical System upgrades at 479 Island Hwy to power up 44 charging stations	\$855,000	E	WU	-	\$680,000	-	-	\$175,000	-	\$855,000
23-22	New	Fuel Truck	Fuel tender truck	\$200,000	E	WU	-	\$200,000	-	-	-	-	\$200,000
23-30	New	Fleet Shop Hoist	Heavy Capacity Hoist for fleet maintenance	\$35,000	E	WU	-	\$35,000	-	-	-	-	\$35,000
23-31	New	Purchase of land	Purchasing of land near 479 for future office space	\$1,500,000	L	WU	-	\$1,500,000					\$1,500,000
													\$0
Customer and Technical Services Sub-Total				\$5,833,000			\$1,169,250	\$3,780,000	\$843,000	\$630,000	\$950,000	\$855,000	\$7,058,000
GRAND TOTAL				\$221,860,000			\$17,727,250	\$37,623,000	\$34,483,000	\$41,840,000	\$50,155,000	\$36,470,000	\$200,571,000

CAPITAL REGIONAL DISTRICT
5 YEAR CAPITAL PLAN
2023 - 2027

<p>Project Number Project number format is "yy-##" "yy" is the last two digits of the year the project is planned to start. "##" is a numerical value. For example, 23-01 is a project planned to start in 2023. For projects in previous capital plans, use the same project numbers previously assigned.</p>	<p>Capital Project Description Briefly describe project scope and service benefits. For example: "Full Roof Replacement of a 40 year old roof above the swimming pool area; The new roofing system meets current energy standards with an expected service life of 35 years".</p>	<p>Carryforward from 2022 Input the carryforward amount from the 2022 capital plan that is remaining to be spent. Forecast this spending in 2023 to 2027.</p>	<p>Project Drivers Maintain Level of Service = Project maintains existing or improved level of service. Advance Board or Corporate Priority = Project is a Board or Corporate priority. Emergency = Project is required for health or safety reasons. Cost Benefit = Project provide economic benefit to the organization.</p>
<p>Capital Expenditure Type Study - Expenditure for feasibility and business case report. New - Expenditure for new asset only Renewal - Expenditure upgrades an existing asset and extends the service ability or enhances technology in delivering that service Replacement - Expenditure replaces an existing asset</p>	<p>Total Project Budget Provide the total project budget, even if it extends beyond the 5 years of this capital plan.</p>	<p>Funding Source Codes Debt = Debenture Debt (new debt only) ERF = Equipment Replacement Fund Grant = Grants (Federal, Provincial) Cap = Capital Funds on Hand Other = Donations / Third Party Funding Res = Reserve Fund STLoan = Short Term Loans WU = Water Utility If there is more than one funding source, use additional rows for the project.</p>	<p>Long-term Planning Master Plan / Servicing Plan = Plan that identifies new assets required to meet future needs. Asset Management Plan / Sustainable Service Delivery Plan = Integrated plan that identifies asset replacements based on level of service, criticality, condition, risk, replacement costs as well as external impacts. Replacement Plan = Plan that identifies asset replacements based primarily on asset age and/or asset material/type. Condition Assessment = Assessment that identifies asset replacements based on asset condition.</p>
<p>Capital Project Title Input title of project. For example "Asset Name - Roof Replacement", "Main Water Pipe Replacement".</p>	<p>Asset Class L - Land S - Engineering Structure B - Buildings V - Vehicles</p>	<p>Cost Estimate Class Class A (±10-15%) = Estimate based on final drawings and specifications; used to evaluate tenders. Class B (±15-25%) = Estimate based on investigations, studies or preliminary design; used for budget planning. Class C (±25-40%) = Estimate based on limited site information; used for program planning. Class D (±50%) = Estimate based on little/no site information; used for long-term planning.</p>	

Service #: 2.670/2.680
Service Name: Regional Water Supply & JDF Water Distribution Combo

SECTION 1: PROJECT DESCRIPTION AND BUDGET													
Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2022	2023	2024	2025	2026	2027	5 - Year Total
SYSTEM REPLACEMENT AND UPGRADES THAT BENEFIT REGIONAL WATER SUPPLY AND JUAN DE FUCA DISTRIBUTION													
16-01	Renewal	Upgrades to Buildings at 479 Island Highway	Maintenance and changes to buildings and office layouts.	\$320,000	B	WU	\$0	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
17-01	Renewal	Voice Radio Upgrade	Replacement of end of life voice radio system repeaters, office, vehicle and handheld radios.	\$1,560,000	E	WU	\$1,000,000	\$1,300,000	\$200,000	\$0	\$0	\$0	\$1,500,000
20-01	New	Portable Pump Station	Portable pump station and generator to provide backup when a pump station is offline, in construction or to bypass a section of pipe.	\$750,000	E	WU	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$50,000
Sub-Total System Replacement and Upgrades That Benefit Regional Water Supply and Juan de Fuca Distribution				\$2,630,000			\$1,050,000	\$1,430,000	\$280,000	\$80,000	\$80,000	\$80,000	\$1,950,000
ANNUAL PROVISIONAL CAPITAL ITEMS													
17-03	Replacement	Office Equipment, Upgrades and Replacements	Upgrade and replacement of office equipment as required.	\$225,000	E	WU	\$0	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$225,000
17-04	Replacement	Computer Upgrades	Annual upgrade and replacement program for computers, copiers, printers, network equipment as required.	\$850,000	E	WU	\$0	\$170,000	\$170,000	\$170,000	\$170,000	\$170,000	\$850,000
17-05	New	Development of the Maintenance Management Systems	Develop maintenance management system.	\$100,000	E	WU	\$50,000	\$70,000	\$20,000	\$20,000	\$20,000	\$30,000	\$160,000
17-06	Replacement	Small Equipment & Tool Replacement (Water Operations)	Replacement of tools and small equipment for Water Operations as required.	\$400,000	E	WU	\$0	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
17-07	Replacement	Small Equipment & Tool Replacement (Corporate Fleet)	Replacement of tools and small equipment for Fleet as required.	\$75,000	E	WU	\$0	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
													\$0
													\$0
Sub-Total for Annual Provisional Capital Items				\$1,650,000			\$50,000	\$380,000	\$330,000	\$330,000	\$330,000	\$340,000	\$1,710,000
GRAND TOTAL				\$4,280,000			\$1,100,000	\$1,810,000	\$610,000	\$410,000	\$410,000	\$420,000	\$3,660,000

Service: 2.670 Regional Water Supply					
Project Number	17-01	Capital Project Title	Historic Goldstream Powerhouse Building	Capital Project Description	Repairs of historic Goldstream Powerhouse building and work toward making the site accessible to the public
Project Rationale	<p>Located near the Japan Gulch Treatment Plant and the Sooke Hills Wilderness Trail (Trans Canada Trail), is an 1897 brick hydroelectric powerplant that served Victoria (notably the streetcars) for approx. 60 years. The Powerhouse has its own Wikipedia entry: http://en.wikipedia.org/wiki/Lubbe_Powerhouse and has captured public interest as a unique structure in BC history. An engineering condition assessment including engineered drawings, site plan and approximate cost of repairs was conducted in 2017. A major repair in the masonry on the north side of the building was completed in 2018. Further masonry and major crack repair was completed on the south side in 2019 (\$10,000). A successful grant application (\$76,000) was used in 2022 to replace the roof membrane/envelope. The approved 2023 funds are to implement basic public interpretation signage and in 2025 to plan and seek grant funding or sponsors for security gates and fencing working toward a goal to make the site available to the public from the nearby Sooke Hills Wilderness Trail.</p>				
Project Number	18-10	Capital Project Title	Species-at-Risk Wildlife Habitat	Capital Project Description	Assessments (office and field) and planning for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA.
Project Rationale	<p>An assessment (office and field) and conservation plan for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA. Funds in 2018 (\$35,000) will be used for compilation of existing knowledge of species, distribution, habitat, research. Funds in 2019 and 2020 (\$50,000 each) will be used to field verify species, critical habitat and movement corridors. Funds added in 2021 (\$25,000) are to develop a GVWSA specific conservation plan based on the office and field investigations. Funds added in 2023 are in anticipation of future habitat mapping required to address BC Species-at-Risk legislation (currently being developed).</p>				
Project Number	19-30	Capital Project Title	Leech WSA Lakes/Tributaries Assessment	Capital Project Description	An assessment of the physical, chemical and biological parameters of the lakes in the Leech WSA.
Project Rationale	<p>To assess restoration of the Leech Water Supply Area and prepare for use of Leech River water to supplement Sooke Lake Reservoir, baseline monitoring of the hydrological, physical, chemical and biological parameters of the main Leech WSA source waterbodies will be conducted. The work will be undertaken in conjunction with the Water Quality division. (Action from the 2017 Strategic Plan for Regional Water Supply).</p>				
Project Number	20-05	Capital Project Title	Leech WSA Terrestrial Ecosystem Mapping & Wetland Classification/Mapping	Capital Project Description	Classification and mapping of terrestrial ecosystems and wetlands and integration with Sooke and Goldstream data.
Project Rationale	<p>The existing Leech WSA terrestrial ecosystem mapping received from the previous landowner is not consistent with that of Sooke and Goldstream WSAs. The project is to renew the ecosystem mapping to a standard that matches Sooke and Goldstream for consistent data and analysis. There has been no detailed mapping of Leech WSA wetlands. The project is to conduct detailed wetland mapping in the Leech WSA to a standard that matches Sooke and Goldstream for consistent data and analysis. The projects have been combined (ecosystem mapping (20-05) and wetland mapping (20-06) and moved forward from 2020 to 2021. The project has been further moved forward from 2022 to 2023. It is advantageous to wait for advances in technology and partners (BC) which may improve the product and/or reduce costs.</p>				

Service: 2.670 Regional Water Supply

Project Number 20-06

Capital Project Title Addressing mining in Leech WSA (impacts, agreements)

Capital Project Description Funding to support work to reduce the impact of mining claims in the Leech WSA

Project Rationale Assessment and/or studies and/or funds to buy and cancel mining claims to mitigate impacts from mining activities and with the goal of reducing mining claims in the Leech Water Supply Area.

Project Number 20-27

Capital Project Title GVWSA Forest Resilience - wildfire/forest modelling and forest management field trials

Capital Project Description Modelling forest and wildfire risk under climate change scenarios & forest/fuel management field trials.

Project Rationale Projects to: a). model impact of climate change on forests, forest fuel types, and associated wildfire behavior and probability and potential effects of management options; and b). trial forest and fuel management treatments that reduce wildfire risk, such as prescribed fire and stand diversification, in the Leech WSA prior to considering those treatment options in Sooke or Goldstream WSAs. **Planned additional funding is being moved forward in the plan. There have been a lack of internal and consulting resources to carry out the projects.**

Project Number 20-28

Capital Project Title GVWSA Forest Resilience - Assessments of forest health and resilience

Capital Project Description Field assessments to better understand current forest health and resilience.

Project Rationale Field assessments to better understand current forest health and resilience including: increasing pine mortality, increase in bark beetle killed trees, existing advance regeneration in the understory, sedimentation sources from roads. The project funding for 2021 and 2022 is moved forward by one year to 2022 and 2023. **Planned additional funding is being moved forward in the plan. There have been a lack of internal and consulting resources to carry out the projects.**

Project Number 21-19

Capital Project Title Lakes Assessment Sooke and Goldstream WSAs

Capital Project Description An assessment of the physical, chemical and biological parameters of the natural lakes in Sooke and Goldstream WSAs

Project Rationale Small lakes in the Sooke and Goldstream WSAs influence both watershed hydrology and water quality in downstream creeks and supply reservoirs. While basic water quality sampling has been undertaken in some of these water bodies, there is a need to map the bathymetry, calculate water volumes, and conduct more comprehensive sampling of the chemical and biological parameters and aquatic vegetation of these lakes. This will facilitate comparisons of these parameters with lakes in the Leech WSA and water quality in existing and future water supply lands.

Service: 2.670 Regional Water Supply

Project Number 21-20 **Capital Project Title** West Leech Road **Capital Project Description** Plan followed by construction of a road to access the western portion of the Leech WSA.

Project Rationale A large portion of the western Leech WSA currently has overgrown unassessed roads. Brushing, upgrade, re-surfacing and some new road construction is required to provide access to this area for wildfire response, security patrols and forest management. Funds to implement plans have been added for 2022-2024.

Project Number 23-02 **Capital Project Title** GVWSA LiDAR Mapping **Capital Project Description** Detailed contour mapping of ground, vegetation and tree cover (3D scanning)

Project Rationale LiDAR (which stands for Light Detection and Ranging) uses light in the form of a pulsed laser to measure ranges (distances). LiDAR can be acquired when orthophotography or other data is collected from the air. LiDAR provides three-dimensional information about the forest stand structure which can be used by GIS (Geographic Information Systems). LiDAR data can be used to quantify forest structure, canopy biomass, and the size and configuration of forest openings to improve understanding of forest fuel loadings and watershed disturbance processes. **Initial project scoping has refined a required budget of \$250,000 rather than the previously planned \$120,000. The results will be used to plan forest fuel treatments across the GVWSA.**

Project Number 22-04 **Capital Project Title** GVWSA Orthophotography **Capital Project Description** Annual contribution to capture of regional digital orthophotography for baseline mapping and monitoring.

Project Rationale Every two years CRD coordinates with municipalities and other levels of government to update aerial photography of the combined areas of interest in the region and develop an overall digital mosaic image. The images of the Greater Victoria Water Supply Area are used to monitor forest disturbances and adjacent land use activities and update spatial databases. To date these funds have come from Operating budgets, making it difficult to undertake other projects in the years when the photography is being flown. **The funding plan has been adjusted to provide funds every second year when it is needed rather than annually.**

Project Number 22-09 **Capital Project Title** GVWSA Powerlines Wildfire Risk Mitigation Plan **Capital Project Description** A detailed assessment, options and plan to reduce the risk of wildfire start from tree fall onto CRD powerlines in the GVWSA.

Project Rationale A powerline that supplies Sooke Dam, the Head Tank, and associated infrastructure runs along the forested slopes on the east side of Sooke Lake Reservoir. Power interruption from tree fall is an ongoing concern. Tree fall on the powerline during the summer months could start a wildfire. While the forest along the line is actively managed to reduce tree fall hazard, concerns about fire starts has prompted a call to investigate the option of clearing a much wider area along the line. Funds will be used to carry out an assessment of the feasibility and impacts of this option.

Service: 2.670 Regional Water Supply

Project Number 22-10 **Capital Project Title** GVWSA/RWS Educational Videos **Capital Project Description** Development of educational videos to address Regional Water Supply issues of interest to the public such as: wildfire risk and mitigation; climate change; water supply master plan update.

Project Rationale The Watershed Protection division provides educational tours of the GVWSA and Regional Water Supply infrastructure. During the COVID pandemic, operating funds dedicated to tours were instead used to develop educational videos to replace or supplement tours. Going forward, there is a desire to provide further educational material on specific topics of current public interest such as: climate change and regional water supply; GVWSA wildfire management; and the Master Plan update for regional water supply. The funding request is for development of one video per year for 2022 and 2023. **Given development of a corporate wide media strategy in 2022, approved funding has been moved forward to ensure additional videos are designed to fit with the strategy and new video branding templates.**

Project Number 23-05 **Capital Project Title** Spill Management Plan and Implementation **Capital Project Description** Review, assessment and re-development of a spill management plan for the GVWSA along with potential procurement of additional equipment or supplies.

Project Rationale The existing spill preparedness plan to protect water quality and other resources in the GVWSA is more than 15 years old. An external review, assessment and re-development of a more comprehensive spill management plan for the GVWSA that considers improved materials, technology and strategies is required. Funding may allow for procurement of recommended spill supplies, or a separate funding request may follow in a subsequent year.

Project Number 24-03 **Capital Project Title** Biosecurity Risk Assessment & Procedures **Capital Project Description** Assess GVWSA biosecurity risks and develop mitigating protocols/procedures

Project Rationale There has already been work done to identify and assess possible sources of biosecurity risk to the GVWSA in the forms of entry of pathogens, invasive plant and animal species, contaminated soils and materials. The project is intended to document the biosecurity assessment and prepare and work with staff to implement practical procedures to mitigate the highest risks.

Project Number 09-01 **Capital Project Title** Leech River Watershed Restoration **Capital Project Description** A 17 year project to restore the Leech WSA lands for water supply.

Project Rationale A 17 year project to 2025 to restore the Leech WSA lands for water supply. An update of projects completed and planned was provided in June 2019 (RWSC Report #19-13). Funding allocated by end of 2025 will be \$5,517,000; however total capital expenditure in the Leech WSA is higher when separate projects to install major bridges is considered.

Service: 2.670 Regional Water Supply

Project Number	16-01	Capital Project Title	Replace Gatehouse at Goldstream Entrance	Capital Project Description	The GWWSA entry gatehouse at Goldstream is past end of life and is to be replaced with a purpose built structure with improved vehicle flow and security function
Project Rationale	Enhanced security is required at the Goldstream entrance to the Water Supply Area. The existing gatehouse/first aid trailer has reached end of life and is unsuitable and located inside the secured area. A site design and purpose built facility with in/out roads, fencing and upgraded autogates (17-09) is planned requiring funding consistent with the project. The scope and scale of this project has increased since the current location is no longer considered feasible/advantageous for the upgrade. Preliminary design and cost estimates have been completed indicating the requested funding. The design and cost includes roadway changes and asphalt, automated gates, and the custom building.				

Project Number	16-06	Capital Project Title	Goldstream IWS Field Office1	Capital Project Description	Renewal of Water Quality field office/lab and equipment storage and Watershed Protection office, yard, training space and equipment storage, replacing longstanding temporary facilities.
Project Rationale	Watershed Protection staff (26 FTE and 8 seasonal auxiliaries) are currently located in 2 trailers and a house at the Goldstream Gate entrance to the water supply area, and in office space at the Integrated Water Services office in View Royal. The trailers were considered temporary office space since their implementation over 15 years ago. The trailers are old, prone to leaks and a concern for mold. Water Quality field staff are located in another old converted facility in the Goldstream area. In addition, there are insufficient facilities for training, equipment storage, emergency management and public education. The separation of staff between various Goldstream facilities and the View Royal location causes inefficiencies and organizational difficulties. The IWS office is also above capacity and moving Watershed Protection staff out will extend the existing office space. An initial investment in 2016 was used to develop a needs assessment for the building and surrounding Goldstream entrance area and cost estimates. Carry forward funds from 2020 will be used to develop a design with building and site construction planned for 2022 and 2023. The disposition of the IWS gravel pit in Goldstream is expected to largely fund the new building. Given a rough construction cost estimate of \$7.5 million for the building and yard; an additional \$1.2 million was added to the budget (in addition to the approved \$500,000) in 2024. Budget design work in 2022 will provide more detailed cost estimates for construction to begin in 2023 and complete in 2024.				

Project Number	17-02	Capital Project Title	Leech River HydroMet System	Capital Project Description	Installation of a network of hydrometeorological stations to collect water quantity and quality information for the Leech WSA.
Project Rationale	A 17 year \$ 5.756 M capital plan is being carried out to restore the Leech Water Supply Area (Project #09-01) to prepare for future water needs. Currently only one hydrological measuring station is capturing flow and turbidity measurements 3.8 km downstream of the future water intake on the Leech River. In order to understand and predict the effect of precipitation, storm events and various restoration management measures on Leech River water quality and quantity, a network of hydrological measuring stations is needed further upstream in the Leech River watershed. This capital project first funded a design study of the most effective and efficient monitoring system that could be implemented (\$10,000) prior to funding implementation beginning in 2018 (\$80,000). Additional funding requests of \$30,000 in 2020 (new total \$100,000) and \$10,000 in 2021 (new total \$25,000) to provide assistance in accessing and addressing safety issues at new weather and hydrology monitoring sites and installing the equipment. Funding requests reflect difficult terrain and access to reach monitoring locations. An additional \$40,000 is requested to complete instrumentation of the Leech River system.				

Service: 2.670 Regional Water Supply

Project Number	18-05	Capital Project Title	GVWSA Forest Fuel Management/FireSmart Activities	Capital Project Description	Implementation of forest fuel management and FireSmart actions in strategic locations for wildfire risk management in the GVWSA.
Project Rationale Wildfire is the greatest threat to water quality in the GVWSA. In 2014 - 2018 CRD staff completed two new fuel reduction corridor projects. Funding to tender contract projects is required in order to complete priority fuel management projects over and above existing staff effort which will be focused on maintenance of existing fuel managed sites. A requested increase from \$75,000 to \$100,000 annually reflects costs experienced in the first year of tendering fuel management work. The need for fuel management to address priority areas will be ongoing and funding is required annually for the 5 year period.					

Project Number	19-02	Capital Project Title	Whiskey Creek Bridge Replacement (Sooke WSA)	Capital Project Description	Replacement of the existing undersized bridge with a longer and higher concrete structure.
Project Rationale Whiskey Creek bridge is located on the Leechtown Main Road, one of the main access routes to Sooke Lake Dam and other critical IWS infrastructure. Whiskey Creek requires a larger bridge as it has been overtopped by storm events in the past and this poses water quality, environmental and safety risks. The project has been moved forward from 2022 to 2023 to allow higher priorities to be addressed first. The bridge project is moved forward to 2024 with design work to begin in 2023.					

Project Number	19-19	Capital Project Title	Hydromet Upgrades Sooke and Goldstream	Capital Project Description	Install additional hydrology monitoring sites on Sooke Lake Reservoir inflow streams and increase instrumentation on meteorological stations in Sooke and Goldstream watersheds.
Project Rationale Only the main tributary inflows into Sooke Lake Reservoir are monitored. To better understand the hydrology of the Sooke watershed, additional hydrology monitoring sites are required. The existing meteorological stations in Sooke and Goldstream watersheds have only basic instrumentation and would benefit from additional sensors and upgrades to improve the quality of the meteorological data. The proposed funds for 2020 have been increased by \$20,000 to cover the costs associated with site preparation, addressing site safety issues and assistance with station installation. Additional funding (\$60,000) is requested in 2023 to complete required upgrades of the Sooke and Goldstream hydromet network.					

Project Number	20-01	Capital Project Title	Kapoor Main Mile 1 Bridge and Asphalt Upgrade	Capital Project Description	Replacement of the existing undersized culvert with a large bridge as well as subsequent 500 m road asphalt replacement.
Project Rationale The existing culvert at Mile 1 on Kapoor Main is undersized, has evidence of buried organics in the fill material and has oversteeped, unstable banks. The culvert will be removed and a bridge installed to improve water carrying capacity at peak flows, fish passage and bank stability. The asphalt section uphill of the bridge will also be repaired or replaced as a component of the project. The project has been moved forward from 2021 to 2022 to allow higher priorities to be addressed first. The project has been phased to replace the bridge in 2022 and replace the asphalt in 2023 with an increased budget allowance. The project was moved forward by an additional year to 2023 (bridge installation) and 2024 (replace asphalt section of road). The project budget has been increased to reflect expected cost.					

Service: **2.670** **Regional Water Supply**

<p>Project Number 20-29</p>	<p>Capital Project Title GVWSA Gravel Crushing</p>	<p>Capital Project Description Production of gravel at existing quarries in Sooke and Goldstream WSAs.</p>
<p>Project Rationale Production of 19 mm road surfacing gravel from GVWSA quarries are required every few years to maintain roads. Gravel production needs are anticipated in 2023 and 2026. The need for additional gravel crushing has been pushed forward by one year to 2024.</p>		

<p>Project Number 21-26</p>	<p>Capital Project Title Road Deactivation/Rehabilitation in the GVWSA</p>	<p>Capital Project Description Deactivate or rehabilitate unneeded roads in the Sooke and Goldstream WSAs.</p>
<p>Project Rationale A review was undertaken to identify roads in the Sooke and Goldstream WSAs that could be rehabilitated and removed from the road network without undue impact to operations, wildfire response and security. Funding is required over the 5 year period to make progress on the roads identified to be deactivated/rehabilitated.</p>		

<p>Project Number 21-27</p>	<p>Capital Project Title Autogate Installations on Primary Access Routes</p>	<p>Capital Project Description Install autogates on the main access routes where the Sooke Hills Wilderness Trail and E&N rail line cross to improve security</p>
<p>Project Rationale Continued residential growth and corresponding increasing recreational pressure bring the public close to critical works (Goldstream Treatment Plant, and Ammonia Injection building). Recreational use of the Sooke Hills Wilderness Trail and Park also generate trespass into the GVWSA, and Drinking Water Protection Zone. One autogate is being installed in 2021, with three subsequent autogates to be installed during 2022 and 2023. The proposed autogates improve security by 24 hour recorded keycard access operation and improved location to increase security. The third and fourth autogate are being deferred by an additional year to 2024 with an additional \$50,000 added to the project budget to allow for additional design and siting considerations; and provincial, Fortis Gas and Island Corridor Foundation to process approvals before the work can be tendered.</p>		

<p>Project Number 22-02</p>	<p>Capital Project Title Muckpile Bridge Supply and Install (Deception)</p>	<p>Capital Project Description Replacement of undersized culverts with bridge which will allow for fish and western toad migration.</p>
<p>Project Rationale Replacement of undersized culverts with a concrete deck L100 bridge which will also improve fish passage and western toad migration. Addition of funding for design work ahead of construction.</p>		

Service: 2.670 Regional Water Supply

Project Number 23-04 **Capital Project Title** 17S/Sooke Main Bridge Replacement **Capital Project Description** Undersized bridge replacement

Project Rationale The current structure (3 concrete culverts side-by-side with a concrete deck) does not allow adequate room to pass potential storm debris. The most recent engineering inspection stated this recycled structure is in fair shape, with spalling of the concrete. The structure is planned to be replaced with a free span concrete bridge. The project has been moved forward from 2023 to 2025 to allow higher priorities to be addressed first. **Addition of funding for design work ahead of construction.**

Project Number 22-11 **Capital Project Title** Additional Boom Anchors for Sooke Lake Reservoir debris boom **Capital Project Description** The log boom protecting the Sooke Lake Reservoir Intake Tower from floating woody debris is inadequately anchored and requiring two additional anchors.

Project Rationale The debris boom on Sooke Lake Reservoir with the existing anchors has the capacity to strike the Intake Tower if the boom breaks. It is recommended to add two additional anchors to ensure that if the boom breaks it will not damage the Intake Tower. **An increased project budget (additional \$20,000) is required to design and install the anchors.**

Project Number 23-10 **Capital Project Title** Work platform for Sooke Lake Reservoir **Capital Project Description** A towable work platform for conducting stationary on-water work activities such as boom and intake tower maintenance and spill response.

Project Rationale This request is for a non-powered towable dock or barge that can be moved to various project sites as required. It allows workers to easily access work on the water from a stable platform, and can allow small equipment (pumps or generators) to be operated on appropriate spill containment, and to be left in place for extended periods of time.

Project Number 23-11 **Capital Project Title** Purchase and deployment of Second Wildfire Camera for Leech WSA, and analytic software **Capital Project Description** A secondary wildfire camera to monitor for heat and smoke signatures in the Leech WSA during fire season.

Project Rationale Rapid detection is key to taking action when fires are still small and controllable. An infrared camera network, supported by software to identify potential ignitions, can be monitored by staff and an after hours service to rapidly provide an alert to new fire starts. This allows response staff to arrive before the fire has a chance to dig in and start to spread quickly. There is an existing camera at Mount Healy that "sees" large portions of the Sooke WSA. The Leech WSA is the most remote and least visible area (to the public and staff) and there is a strong benefit to early detection. The camera may need to be supported with a tower and communications upgrades. **Funding in 2023 is earmarked for analytic software for both wildfire cameras and funding in 2024 is earmarked for purchase and deployment of the additional Leech camera.**

Project Number 23-23 **Capital Project Title** Brushcutting head for Excavator **Capital Project Description** The existing brushcutting head from the excavator used in roadside maintenance has reached end of life and requires replacement.

Project Rationale The existing brush cutting head for the excavator is past end of life and requires replacement. The old head will be disposed of and offset the cost of the new head.

Service: 2.670 Regional Water Supply

Project Number 16-10 **Capital Project Title** Post Disaster Emergency Water Supply **Capital Project Description** Identify and procure emergency systems for post disaster preparedness.

Project Rationale In the event of a disaster, it is proposed to have in place the ability to source, treat (if required) and distribute drinking water during the initial and sustained response and recovery phases to the public. This item will see the study of the issue in 2016 and 2017 with the anticipated purchase of one or more emergency distribution systems in 2017. Initial investigation has highlighted areas, such as having hardened hydrants/standpipes that the CRD should be investing in. Additional funds are required to continue implementing these additional works and equipment.

Project Number 17-13 **Capital Project Title** Asset Management Plan **Capital Project Description** Development of a plan to inform future areas of study and highlight critical infrastructure improvements.

Project Rationale This plan will bring various components together from items 14-01, 16-07, 16-08, 16-09, 16-10 and 16-11 and form a strategic plan that will identify future study and construction requirements with capital replacement budgets and schedules.

Project Number 19-15 **Capital Project Title** Hydraulic Capacity Assessment and Transient Pressure Analysis **Capital Project Description** Determine the existing level-of-service for the RWSC transmission system and conduct a transient pressure analysis

Project Rationale The RWSC transmission is complex with all the connection points to it. Funding is required to determine the available pressures and flows throughout the transmission system and whether it is susceptible to transient pressure waves.

Project Number 20-08 **Capital Project Title** Regional Water DCC Program **Capital Project Description** Design of a Regional DCC Program

Project Rationale The municipalities are developing and growing and may result in upgrades to maintain the level of service due to development. Funds are required to design a Regional Water Development Cost Charge program.

Service: 2.670 Regional Water Supply

Project Number 20-10 **Capital Project Title** Condition & Vulnerability Assessment **Capital Project Description** Conduct a condition assessment of critical supply infrastructure and assess its possibility of risk.

Project Rationale The RWSC is a large system with infrastructure of various ages and condition. Funding is required to conduct a condition assessment of critical infrastructure, such as Humpback PRV, and assess their risk of failure and provide a high level timeline for replacement/renewal.

Project Number 21-05 **Capital Project Title** Level of Service Agreement **Capital Project Description** From #19-15 & #20-11, develop level-of-service agreements for participating municipalities to address hydraulic capacity of infrastructure.

Project Rationale The RWSC supplies water directly and indirectly to 12 municipalities. Based upon Capital Projects #19-15 and #20-11, level-of-service agreements for participating municipalities will be developed to address hydraulic capacity of infrastructure.

Project Number 18-07 **Capital Project Title** Replacement of UV System **Capital Project Description** Replacement of the UV system at the Goldstream Water Treatment Plant

Project Rationale Two 24" UV disinfection units that were decommissioned from the old Charters Creek plant are required to be installed at the JG plant along with electrical and control connections. Inlet and outlet valves are in place, but require 24" stainless steel piping to insert units into place. Funding is required to relocate existing UV disinfection units to the JG plant and provide electrical & control and piping connections. Construction has been spread over two years to correspond with construction over the winter period.

Project Number 18-08 **Capital Project Title** Bulk Supply Meter Replacement Program **Capital Project Description** Planned replacement of aging bulk meter replacement based upon a condition assessment and water audit.

Project Rationale This item is to replace, upgrade and install new bulk water meters and related equipment that measure flow and volumes of water delivered to the wholesale customers. Many of the meter stations are in need of upgrading. Funding is required to replace the flow meter and appurtenances. Funding is required for Blue Ridge, Alderly, Holland and Maplewood replacements.

Service: 2.670 Regional Water Supply

Project Number	18-15	Capital Project Title	Corrosion Protection Program	Capital Project Description	Study deficiencies in the current material protection and implement recommendations.
Project Rationale This item is to assess, design and implement cathodic protection for the various infrastructure, including steel pipes, that are susceptible to corrosion. The supply system has various implementations of cathodic protection ranging from interior/exterior coatings for pipe and passive anodes to impressed current systems with variable results and condition. Funding is required to retain a specialist to conduct a high level assessment of existing infrastructure with recommendations for additional investigation or areas that require immediate attention.					

Project Number	18-18	Capital Project Title	Main No.3 Segment Replacement	Capital Project Description	Replacement of segments of Main No. 3 based upon previous studies.
Project Rationale The existing Main No. 3 is approximately 70 years old. Some section of the 22 km main are steel pipe in known potentially corrosive soils. It is proposed to eventually replace a segment or Main #3 on Wale Road, Island Hwy. and Adams Place in Colwood and View Royal. Conceptual design and options analysis will start in 2023 with detailed design and construction commencing in 2024 to 2027. Funding is required to retain a consultant to undertake design and to construct a replacement to Main No. 3.					

Project Number	19-05	Capital Project Title	Repairs - Kapoor Shutdown	Capital Project Description	Repair items such as defects in the Kapoor tunnel, replacement of critical valves, intake exterior inspection and actuator replacement while the Kapoor tunnel is shutdown.
Project Rationale During the 2016 Kapoor Tunnel inspection numerous deficiencies were noted. Some of the repairs were made and inspected in 2017. Funds are required to complete remaining identified repairs as well as conduct other works, such as head tank valve maintenance, dive inspection of the Intake Tower, hydraulic actuator line replacement, that can only be conducted when the Kapoor Tunnel is offline.					

Project Number	19-23	Capital Project Title	Critical Spare Equipment Storage & Pipe Yard	Capital Project Description	Plan, design and construct a critical equipment storage building.
Project Rationale Additional and accessible storage is required at the pipe yard for critical spare equipment such as repair bands and clamps. Funds are required to pland, design and construct an equipment storage building accessible by loading vehicles.					

Service: 2.670 Regional Water Supply

Project Number 20-16 **Capital Project Title** Cecelia Meter Replacement **Capital Project Description** Replacement of the Cecelia billing meter as well as its enclosure.

Project Rationale The St Giles and Cecelia meters are aging and in hard to maintain locations. Funding is required to construct new meter sites and decommission and demolition the old sites.

Project Number 20-17 **Capital Project Title** Decommission & Conceptual Design of the Smith Hill Site **Capital Project Description** Plan for decommission the conceptual design for the replacement of the Smith Hill reservoir site.

Project Rationale The Smith Hill reservoir has not been in operation for many years. Funds are required to plan for decommission the site in 2020 and then carry out decommissioning in 2023.

Project Number 21-06 **Capital Project Title** Sooke Lake Dam Spillway Hoist and Stop Log Replacement **Capital Project Description** Replacement of the sluice gate spillway hoist and stop logs at Sooke Lake Dam.

Project Rationale The Sooke Lake Dam Spillway Hoist is at it's end of life and poses a risk of failure when required for use of lowering the high level gate barriers. Funds are required to replace the hoist.

Project Number 21-09 **Capital Project Title** Goldstream Water Chlorination Gas System Removal **Capital Project Description** Plan and construct provisions for removal of chlorination system

Project Rationale The Goldstream Water Treatment Plant has undergone numerous upgrades and updates, both large and small since its initial construction. There are numerous vestigial mechanical and electrical assets that require planned removal. Funds are required to plan and remove unused assets that affect maintenance of the system.

Service: 2.670 Regional Water Supply			
Project Number	21-10	Capital Project Title	SCADA Masterplan and System Upgrades
Capital Project Description	Update the SCADA Master Plan in conjunction with the Juan de Fuca Water Distribution, Saanich Peninsula Water and Wastewater, and Core Area Wastewater Services.		
Project Rationale	The SCADA and radio system utilized by the RWS comprises of components ranging from 2-25 years in age. A planned replacement of assets, to be coordinated with the Juan de Fuca Water Distribution and Saanich Peninsula Water & Wastewater Systems is required to create a more resilient and cohesive communications system		
Project Number	21-11	Capital Project Title	RWS Supply Main No. 4 Upgrade
Capital Project Description	Upgrade vulnerable sections of the RWS Supply Main No. 4 and Main No. 1 to a resilient system to better able to withstand a seismic event. Vulnerable sections are Concrete Cylinder pipe material which is susceptible to failure during a seismic event. This is part of project partnered with the Saanich Peninsula Water system.		
Project Rationale	Sections of RWS Supply Main No. 4 have been identified as being vulnerable due to age and material type during a seismic event and require replacement. To support replacement of the Goldstream section of Main No. 4, improvements to RWS Supply Main No. 1 are required, such as replacement of approximately 40 m of transmission Main #1 at Watkiss Way and upgrade of the Watkiss PRV, upgrade of the Millstream PRV, modifications to the Humpback PRV and construction of five new pressure control stations. This project is part of a project partnered with the Saanich Peninsula Water System to increase the resilience of the water system by replacing vulnerable sections of transmission mains. The budget breakdown of the works: Goldstream section of Main #4 \$21,975,000; Watkiss Way section of Main #1 \$950,000; Watkiss PRV \$1,250,000; Millstream PRV \$1,350,000; Humpback PRV improvements \$825,000; Five new PRVs \$9,050,000.		
Project Number	22-14	Capital Project Title	Sooke River Intake Feasibility
Capital Project Description	A feasibility study for an intake from Sooke River to replace the Main No. 15 salmon fishery contribution, for a variety of reasons.		
Project Rationale	The feasibility to construct an intake from Sooke River to replace the Main No. 15 salmon fishery contribution.		
Project Number	22-15	Capital Project Title	Microwave Radio Upgrades
Capital Project Description	To provide a high bandwidth communications backbone to the RWS system, a microwave communications system will be installed.		
Project Rationale	Supports current and future fire detection cameras.		

Service: 2.670 Regional Water Supply

Project Number 22-16 **Capital Project Title** Goldstream WTP Drainage Improvements **Capital Project Description** Construct drainage improvements for the Goldstream Water Treatment Plant and assess

Project Rationale The Goldstream Water Treatment Plant is located near the Goldstream waterway, drainage improvements are required so that the Goldstream waterway is not impacted if there were to be a chlorine or ammonia spill.

Project Number 22-17 **Capital Project Title** Goldstream WTP Safety Improvements **Capital Project Description** Construct employee and public safety improvements such as a trail notification system if there was an ammonia spill.

Project Rationale The Goldstream Water Treatment Plant is located near a public trail, safety improvements such as a notification system are required. Funds will be for design and construction.

Project Number 16-16 **Capital Project Title** Implications from Goldstream Dam Safety Review **Capital Project Description** Conduct dam improvements at the Goldstream dams that resulted for the Dam Safety Review and routine inspections (refer to the Dam Safety Database).

Project Rationale The Goldstream Dams Dam Safety Review was initiated in 2015 and delivered in 2016 and the review provided recommendations for dam safety improvements for the 11 dams in the Goldstream Watershed. The dam deficiencies and related projects are identified in the Dam Safety Database.

Project Number 16-17 **Capital Project Title** Butchart Dam No. 5 Remediation Planning & Construction **Capital Project Description** Phase 1 Rehabilitation (grouting) of Butchart Dam No. 5 and planning for Phase 2.

Project Rationale Butchart Dam #5 was observed to have a sinkhole on the downstream slope. The earthfill dam was founded on limestone in the about 1905 and seepage issues have occurred since that time. A geotechnical investigation was conducted in 2016, and remediation has been recommended by geotechnical consultant. It is proposed to complete detailed design of remediation in 2018 and construction of repairs in 2019. Phase 1 of the revised program is complete and the dam is now in the monitoring stage.

Service: 2.670 Regional Water Supply

Project Number 17-25

Capital Project Title Implications from Sooke Lake Dam Safety Review

Capital Project Description Conduct dam improvements at the Sooke Lake Dam that resulted from the Dam Safety Review and routine inspections (refer to the Dam Safety Database)

Project Rationale The 2016 Dam Safety Review Audit was completed and provided a list of recommended improvements. Upcoming capital work to be completed is identified in the dam safety database.

Project Number 18-19

Capital Project Title Sooke Lake Dam - Instrumentation System Improvements

Capital Project Description Complete dam performance instrumentation system/surveillance improvements for the Sooke Lake Dam.

Project Rationale The 2016 Dam Safety Review identified and recommended various dam safety surveillance instrumentation improvements including piezometers, weirs, seismometers, etc. An Instrumentation system plan was completed and includes a prioritized list of improvement projects.

Project Number 18-20

Capital Project Title Sooke Lake Dam - Breach Risk Reduction Measures

Capital Project Description Implement measures to reduce Sooke Lake Dam breach implications in the unlikely event of dam failure (refer to the NHC Consulting study).

Project Rationale A Dam Breach Assessment and Inundation Zone Mapping project was completed in 2017 by an engineering consultant and risk mitigation measures included structural and non-structural measures to lower risk should a dam breach occur. The measures are captured in the Dam Safety Database.

Project Number 19-07

Capital Project Title Integrate Dam Performance and Hydromet to SCADA

Capital Project Description Integrate the dam safety instrumentation/surveillance (i.e. piezometers and weirs) and HydroMet stations to report to WIO through the existing SCADA system.

Project Rationale Based on capital project 18-19, dam performance piezometers and weirs and Hydromet/Dam Safety Instrumentation stations will be integrated through the SCADA system.

Service: 2.670 Regional Water Supply

Project Number 19-09 **Capital Project Title** Cabin Pond Dams Decommissioning **Capital Project Description** The Cabin Pond Dams (x2) have been retired from drinking water service, plan to decommission.

Project Rationale The two Cabin Pond Dams have been retired from drinking water service with no other interested owners. Funds are required to plan and implement decommissioning of the dams.

Project Number 19-12 **Capital Project Title** Goldstream Dams Instrumentation Improvements **Capital Project Description** Conduct dam safety instrumentation/surveillance improvements (refer to report from Thurber Engineering).

Project Rationale Thurber completed a study on the Goldstream Dam instrumentation and found numerous deficiencies with respect to dam safety. Funds are required to design and implement improvements to the Goldstream Dam instrumentation.

Project Number 19-13 **Capital Project Title** Dam Safety Instrumentation **Capital Project Description** The existing dam safety instrumentation/surveillance equipment is getting older and will need to be replaced/rehabilitated (does not include pending SCADA effort).

Project Rationale Aging Hydromet/Dam Safety Instrumentation stations maintained by Infrastructure Engineering require replacement so that ongoing monitoring within the watersheds can be maintained. Funds are required for upgrades and replacement of existing Hydromet Stations.

Project Number 20-19 **Capital Project Title** Goldstream System High Level Outlet Valve Replacements **Capital Project Description** The Goldstream and Butchart high level outlet valves have been identified as requiring replacement.

Project Rationale Through dam safety inspections and routine operations, the Goldstream and Butchart high level outlet valves have been identified as requiring replacement. Funds are required to design and replace the valves.

Service: 2.670 Regional Water Supply

Project Number 21-03 **Capital Project Title** Deception Dam - Dam Safety Review 2021 & Improvements **Capital Project Description** Conduct a Dam Safety Review and improvements for the Deception Dam.

Project Rationale Deception Dam has a consequence classification of "very high" and a dam safety review is required to be completed every ten years under the current B.C. Dam Safety Regulation. The last dam safety review was completed in 2011. The dam safety review is anticipated to be an "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. Project includes budget for subsequent year to complete recommended dam safety improvements.

Project Number 21-04 **Capital Project Title** Saddle Dam - Dam Safety Review 2021 & Improvements **Capital Project Description** Conduct a Dam Safety Review and improvements for the Saddle Dam.

Project Rationale Saddle Dam has a consequence classification of "very high" and a dam safety review is required to be completed every ten years under the current B.C. Dam Safety Regulation. The last dam safety review was completed in 2011. The dam safety review is anticipated to be an "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. Project includes budget for subsequent year to complete recommended dam safety improvements.

Project Number 21-21 **Capital Project Title** Goldstream Dams - 4 Low Level Gate Improvements **Capital Project Description** Logistics planning in 2022, installation in 2023

Project Rationale Several of the water control gates related to the Goldstream dams are in need of repair and possibly replacement.

Project Number 22-08 **Capital Project Title** Deception Dam Surveillance Improvements **Capital Project Description** Replace and supplement the Dam Safety Instrumentation at Deception Dam.

Project Rationale The latest engineering data review identified deficiencies with the existing piezometers and seepage weir. It is proposed to prepare a system improvement plan and thereafter complete repairs, improvmetn and install supplementary dam performance instrumentation.

Project Number 23-07 **Capital Project Title** Sooke Lake Dam Spillway and Gates Retrofit **Capital Project Description** Detail and construct seismic retrofits for the existing structures initially focusing on the spillway and gates structures.

Project Rationale The siesmic assessment completed in 2017 included recommendations for siesmic retrofits for Sooke Lake Dam including siesmic anchoring of the spillway, gate structure and the intake tower bridge.

Service: 2.670 Regional Water Supply

Project Number 23-08 **Capital Project Title** Regional Watershed Dams – Flood Forecasting System **Capital Project Description** Update the existing flood forecasting system (WD4Cast) to a modern version including Standard Operating Procedures and training for staff.

Project Rationale The 2016 Dam Safety Review included a recommendation to improve the flood forecasting system, which is becoming more important with Climate Change. This item will update the existing flood forecasting system from WD4Cast to a modern version including Standard Operating Procedures and training for staff.

Project Number 23-09 **Capital Project Title** Sooke Lake Dam - Dam Safety Review 2023 **Capital Project Description** Conduct a Dam Safety Review to meet regulatory requirement.

Project Rationale Sooke Lake Dam has a consequence classification of "extreme" and a dam safety review is required to be completed every seven years under the current B.C. Dam Safety Regulation. The last dam safety review was completed in 2016. The dam safety review is anticipated to be an "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. Project includes budget for subsequent years to complete recommended dam safety improvements.

Project Number 25-01 **Capital Project Title** Goldstream Dam - Dam Safety Review 2025 & Addressing Implications **Capital Project Description** Conduct a Dam Safety Review to meet regulatory requirement.

Project Rationale The Goldstream Watershed Dams have a consequence classification of "low" to "high" and a dam safety review is required to be completed every ten years under the current B.C. Dam Safety Regulation. The last dam safety review was completed in 2015. The dam safety review is anticipated to be an "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. Project includes budget for subsequent years to complete recommended dam safety improvements.

Project Number 25-02 **Capital Project Title** Probable Maximum Flood and Inflow Design Flood Updates **Capital Project Description** Update the previous edition from 2015 (recommended 10 year review cycle).

Project Rationale The various Dam Safety Reviews and Canadian Dam Safety Guideline recommend updating the reservoir inflow design flood and freeboard analysis every ten years.

Service: 2.670 Regional Water Supply

Project Number 20-04 **Capital Project Title** Sooke Lake HyDy Model Development **Capital Project Description** Critical data collection, model building+calibration, model utilization for 3 different scenarios

Project Rationale This project consists of the following different phases: 2020/2021 Procurement/Rental of monitoring equipment to fill critical data gaps; 2022 Consulting contract to build the hydrodynamic lake model and calibrate it against existing data; 2022 Consulting contract to run the model for a North Basin intake scenario; 2023 Consulting Contract to run the model for investigating impacts of a diversion of Leech River water into Sooke Lake; 2024 Consulting Contract for investigating impacts of wind induced seiches in Sooke Lake.

Project Number 22-06 **Capital Project Title** Sooke Lake Food Web Study **Capital Project Description** Assess the aquatic food web structure and create an inventory of fish and invertebrate species and distribution in Sooke Lake Reservoir - to be used as indicators of stream health

Project Rationale CRD has been using predominantly algal data as an indicator for stream health and condition assessment in the source waters. To gain a better understanding of the source water conditions and how they may change over time it is necessary to expand this indicator system for other trophic levels in the food web. Sooke Lake Reservoir is of particular interest as the primary and critical water source for the GVDWS and therefore a aquatic food web study will be commissioned on this lake.

Project Number 23-06 **Capital Project Title** GVDWS Nitrification Study **Capital Project Description** Investigate nitrification occurrence and potential impacts on drinking water quality

Project Rationale With the operation of the upgraded Goldstream disinfection process (liquid NH3 and hypo) the volatility of the residual products and potential for nitrification in the distribution systems needs to be studied to assess any potential impacts to the drinking water quality.

Project Number 24-02 **Capital Project Title** Boat Motor Replacement with Electric Outboards (Sooke and Goldstream Boats) **Capital Project Description** 50hp and 15hp motor replacement due to age and water quality concerns, large electric outboards are already available from Torqeedo for instance

Project Rationale When the existing boat motors are due for replacement they shall be replaced with electric outboard motors to reduce emmissions and to provide clean propulsion of CRD boats on the drinking water source lakes. This will reduce the risk of fuels spills and eliminate combustion exhausts entering the water.

Service: 2.670 Regional Water Supply

Project Number	17-27	Capital Project Title	Watershed Bridge and Culvert Replacement	Capital Project Description	Replacement of small culverts and bridges throughout the GVWSA.
Project Rationale This provides annual funding for the replacement of culverts and bridges that have reached end of life and/or are undersized given present knowledge of potential peak water flows and anticipated climate change effects. With the completion of peak flow modelling of all major structures in the Sooke and Goldstream WSAs in 2017, additional funds are required beginning in 2018 to upgrade identified structures to current standards. Costs of upgrades have increased significantly in the last 5 years.					

Project Number	17-28	Capital Project Title	Watershed Security Infrastructure Upgrade and Replacement	Capital Project Description	New, upgrade and replacement of security infrastructure in the GVWSA.
Project Rationale The outer boundary of the Leech, Sooke and Goldstream Water Supply Areas is approximately 119 kilometers in length. Main access roads are gated and there are 11 kilometers of existing security fencing. A constant effort is needed to maintain a Closed Watershed Policy. Through monitoring, high incident areas are identified, security plans are developed, and security infrastructure (fencing, gates and signage) is installed or upgraded where required. The uplift in provisional funding requested in 2017 has been reduced given full integration of the Weeks Lake area within the GVWSA, completion of fencing and gates related to the Sooke Hills Wilderness Trail and with separate capital projects for autogates.					

Project Number	17-29	Capital Project Title	Water Supply Area Equipment Replacement	Capital Project Description	Hydrometeorological, fireweather and wildfire suppression equipment replacement.
Project Rationale This provides annual funding for the replacement or upgrading of equipment for wildfire suppression and spill response, fire weather stations, hydro-meteorological monitoring and water quality sampling and monitoring equipment. Given an expansion of the hydrology and meteorology network of stations and sensors, an additional \$50,000 per year is added in 2020 and going forward. In 2021 and going forward, funding is reduced by \$20,000 as water quality equipment will be funded under a separate line item (21-17). A revised level of funding is requested beginning in 2023 that reflects forecasted needs.					

Project Number	17-30	Capital Project Title	Transmission Main Repairs	Capital Project Description	Emergency repairs to the transmission mains.
Project Rationale Each year a visual inspection of this critical supply tunnel is carried out by CRD staff. This capital item allows for minor repairs that are discovered during these inspections. This also allows for annual funding for repair of emergency breaks on large diameter supply mains.					

Service: 2.670 **Regional Water Supply**

Project Number 17-31 **Capital Project Title** Transmission System Components Replacement **Capital Project Description** Replacement and repair of transmission components.

Project Rationale This is an annual allowance for the capital costs for the replacement and repair of supply system components that fail under normal operation and maintenance during the year.

Project Number 17-33 **Capital Project Title** Disinfection Equipment Parts Replacement **Capital Project Description** Replacement of incidental equipment and parts associated with the disinfection system.

Project Rationale The annual work includes the replacement of the plastic gas feed piping that has become very brittle, installing air valves on the ammonia solution lines, installing and replacing shut off valves on the booster pumps supply piping, installing indicator stems on UV cooling water valves, relocating the UV cooling water feed pipes, improving the landscaping around the UV building to reduce dust and other minor upgrades.

Project Number 17-34 **Capital Project Title** Supply System Computer Model Update **Capital Project Description** Annual update of the regional hydraulic model.

Project Rationale This item is to allow for staff and consultant time each year to keep the hydraulic computer model current.

Project Number 19-16 **Capital Project Title** Dam Improvements **Capital Project Description** Items not covered by Dam Safety Reviews, but brought up in Dam Safety Inspections and Dam Safety Reviews and address items in the dam safety database/risk registry

Project Rationale Dam Safety Inspections are carried out throughout the year and result in minor improvements at each dam annually. These improvements are minor in nature and are typically not covered in the Dam Safety Review. Funds are required to carry out the dam safety improvements resulting from Dam Safety Inspections.

Project Number 19-22 **Capital Project Title** SCADA Repairs & Equipment Replacement **Capital Project Description** Items not covered by the SCADA Replacement and SCADA Master Plan, but integral in maintaining the SCADA System and revenue meter system.

Project Rationale This item is to allow for unplanned SCADA repairs and equipment replacement not covered by the capital projects SCADA Replacement.

Service: 2.670 Regional Water Supply

Project Number 21-15
Capital Project Title Corrosion Protection
Capital Project Description Replace corrosion protection assets, such as coatings, for the transmission system when identified.
Project Rationale There are numerous assets with varying levels of corrosion protection throughout the RWS system. Funds are required to ensure that corrosion protection assets are replaced or rehabilitated when identified.

Project Number 21-16
Capital Project Title Valve Chamber Upgrades
Capital Project Description Replace failing valves and appurtenances along the RWS supply system.
Project Rationale The RWS system has numerous isolation and air valves along the transmission system, usually in underground chambers. Funds are required for replacement of valves and chamber upgrades as they are identified.

Project Number 21-17
Capital Project Title Water Quality Equipment Replacement
Capital Project Description Replacement of water quality equipment for the water quality lab and water quality operations
Project Rationale This provides annual funding for the replacement or upgrading of equipment for the water quality lab, sampling, and operations. Of this provisional budget, \$20,000 was previously included in item 17-29 (Water Supply Area annual provisional budget)

Project Number 21-18
Capital Project Title LIMS support
Capital Project Description Support for LIMS database
Project Rationale Provides for support for the laboratory information management system

Project Number 23-20
Capital Project Title Land Exchange/Acquisition
Capital Project Description Land surveys, appraisals to support decisions regarding land exchange to increase catchment area, buffer water supply areas and other possible land exchange and acquisition within the RWS system.
Project Rationale There are opportunities to increase the catchment and critical buffer areas of Sooke, Goldstream and the Leech WSA by purchase or land exchange with surrounding land owners. From time to time, the RWS System requires acquisition of lands for infrastructure purposes. Funds will be used when needed to undertake appraisals, legal surveys, and legal fees for work to develop agreements to purchase or exchange lands for the Regional Water Supply Area or System.

Service: 2.670 **Regional Water Supply**

Project Number 17-35 **Capital Project Title** Vehicle & Equipment Replacement (Funding from Replacement Fund) **Capital Project Description** This is for replacement of vehicles and equipment used by CRD Water Services for the day-to-day operation and maintenance of the supply system.

Project Rationale This is for replacement of vehicles and equipment used by CRD Water Services for the day-to-day operation and maintenance of the supply system. The Equipment Replacement Fund is used to fund the expenditure. The requests have been adjusted to align with the pricing for electric vehicles.

Project Number 20-22 **Capital Project Title** Vehicle for the Dam Safety Program **Capital Project Description** New Transit Van

Project Rationale An additional pick up is required for the dam safety program. The request has been adjusted to align with the pricing for an electric Transit Van.

Project Number 20-23 **Capital Project Title** Vehicle for the CSE Support Program **Capital Project Description** New Transit Van

Project Rationale A new Transit van is required to support the Confined Space Entry Support program. The request has been adjusted to align with the pricing for an electric Transit Van.

Project Number 21-30 **Capital Project Title** Vehicle for Warehouse Operations **Capital Project Description** New pick up

Project Rationale For use of the warehouse worker to source supplies and materials in support of the remote sites. This warehouse worker will maintain wastewater stores and will travel and transport as required items between stores locations. A pickup truck will be required. The request has been aligned with the pricing for an electric Pick Up.

Project Number 22-18 **Capital Project Title** Electric Vehicle Charging Stations **Capital Project Description** 7 Dual charging stations at 479 Island Hwy and 1 Dual charging station at the Watershed Protection FOC

Project Rationale EV Charging Stations Are required at 479 Island Hwy and the Watershed Protection FOC in order to charge the EV's being purchased during 2021, 2022 and future budget periods. The installation costs per charger is reduced when more than one is installed at a time. There are grants available that will cover approx. 50% of all costs.

Project Number 23-21 **Capital Project Title** EV Charging Stations Electrical Infrastructure **Capital Project Description** Electrical System upgrades at 479 Island Hwy to power up 44 charging stations

Project Rationale In support of the CRD's Climate Action Strategy to reduce the corporate GHG emissions. The CRD Fleet of vehicles is one of the larger contributors to the generation of GHG's. Integrated Water Services identified 44 of the approx. 100 vehicles that operate out of the 479 Island location for replacement with Electrical Vehicles by 2030. In preparation for providing the proper charging network at 479 an Electric Vehicle Fleet Conversion Study was completed in 2021. The results of the study was to upgrade the electrical infrastructure to accommodate the power needs of 44 charging points. It is proposed that phase 1 is started in 2023 to upgrade the electrical distribution system and provide 17 charging points. The larger portion of the costs will be to upgrade the electrical system. Phase 2 to allow for a further 27 charging points can be planned to accommodate the balance of EV vehicles pending their purchasing and delivery.

Service: 2.670 Regional Water Supply

Project Number 23-22 **Capital Project Title** Fuel Truck **Capital Project Description** Fuel tender truck

Project Rationale At present the fueling of stationary emergency generators and equipment is done using a tidy tank. This requires several trips to the gas station. During the period when fuel was difficult to source it became apparent that Corporate Fleet needs to find a solution to the possibility that during an emergency fuel is available. The fuel truck will also be used during a watershed emergency to fuel equipment and vehicles.

Project Number 23-30 **Capital Project Title** Fleet Shop Hoist **Capital Project Description** Heavy Capacity Hoist for fleet maintenance

Project Rationale The new larger and heavier vehicles are proving to be a challenge for the two hoists presently used in the Fleet worksho at 479 Island Hwy. Currently our hoists are rated for 18,000 lbs. It is proposed to replace one of the hoists with a 24,000 lbs hoist in the centre bay.

Project Number 23-31 **Capital Project Title** Purchase of land **Capital Project Description** Purchasing of land near 479 for future office space

Project Rationale Purchasing of land near 479 for future office space

Project Number 23-12 **Capital Project Title** Project Delivery Strategy **Capital Project Description** Develop a strategy to deliver the identified projects from the 2022 RWS Master Plan.

Project Rationale Develop a strategy to deliver the identified projects from the 2022 RWS Master Plan. With over \$2 billion in planned spending over the next 30 years, including individual projects up to \$1 billion, a strategy is required on how to deliver the projects including project delivery models, assessment of consulting resources, contracting resources and internal staff resources.

Project Number 23-13 **Capital Project Title** Filtration Plant Planning & Design **Capital Project Description** Conduct a siting, conceptual design and detailed design for a filtration plant

Project Rationale Identified in the 2022 Master Plan, planning, design and future construction of a Filtration Plant is required. Initial steps will include confirming site requirements, overview of integration with other system components, review of current and future technologies and preliminary engineering studies such as geotechnical once a site is confirmed.

Project Number 23-14 **Capital Project Title** Council Creek Crossing Hydrology Review **Capital Project Description** Conduct a hydrology review of the Council Creek crossing of water mains to ensure pipe resilience during high rainfall events.

Project Rationale Council Creek runs through currently undersized culverts that need hydraulic assessment as well as hydrological confirmation of what flows they are expected to carry. If these culverts failed in an extreme storm event then supply mains may be affected negatively.

Service: 2.670 Regional Water Supply

Project Number 23-24 **Capital Project Title** East-West Connector (Filtration Plant to District of Sooke) **Capital Project Description** Planning and Conceptual Design of the East-West Supply Main from the proposed filtration plant to the District of Sooke

Project Rationale Identified in the 2022 Master Plan, planning and conceptual design of an East- West Supply Main from the proposed filtration plant to the District of Sooke to maintain level of service and to account for growth.

Project Number 23-25 **Capital Project Title** Deep Northern Intake and Sooke Lake Pump Station **Capital Project Description** Planning and Design of the Deep Northern Intake and Sooke Lake Pump Station (identified in the 2022 Master Plan)

Project Rationale Identified in the 2022 Master Plan, planning and design of the Deep Northern Intake and Sooke Lake Pump Station is required to provide water supply and transmission capability from currently inaccessible parts of Sooke Lake into the water supply and treatment systems.

Project Number 23-26 **Capital Project Title** Transmission Main - Sooke Lake Pump Station to Head Tank **Capital Project Description** Planning and Design of the Transmission Main from the Sooke Lake Pump Station to Head Tank (identified in the 2022 Master Plan)

Project Rationale Identified in the 2022 Master Plan, planning and design of a pumped transmission main from the future Sooke Lake Pump Station to the existing Head Tank.

Project Number 23-27 **Capital Project Title** Gravity Main - Sooke Lake to Head Tank **Capital Project Description** Planning and Design of a Gravity Transmission Main (redundancy) from Sooke Lake to Head Tank (identified in the 2022 Master Plan)

Project Rationale Identified in the 2022 Master Plan, planning and design of a gravity transmission main from Sooke Lake to the Head Tank to provide redundant water supply to the system.

Project Number 23-28 **Capital Project Title** Goldstream Reservoir Connector **Capital Project Description** Planning and Design of the Goldstream Reservoir Connector transmission main

Project Rationale Identified in the 2022 Master Plan, planning and design of a transmission main to connect the Goldstream Reservoir to the Sooke system to ensure transmission safety and reliability when using the Goldstream system to supplement flows to the Sooke system.

Project Number 23-15 **Capital Project Title** Mt Tolmie Reservoir Security **Capital Project Description** Conduct public consultation with conceptual designs for site security required at the Mt Tolmie Reservoir

Project Rationale The Mt. Tolmie Reservoir requires site security upgrades that will impact the public interface. Conceptual designs of the proposed site security and public consultation is required.

Service: 2.670 Regional Water Supply

Project Number 23-16 **Capital Project Title** Humpback Channel Assessment and Upgrades **Capital Project Description** Hydraulically assess the Humpback Overflow channel and conduct a condition assessment of the culverts at the Gatehouse.

Project Rationale Hydraulically assess the Humpback Overflow channel and conduct a condition assessment of the culverts at the Gatehouse. Recommendations from this assessment will inform future capital works to improve the flow path for overflows and additional stormwater entering the flow path and impacting downstream structures.

Project Number 23-17 **Capital Project Title** Main No. 4 - Mt Newton to Highway 17 **Capital Project Description** Replacement of a approximately 1.9km of the Main No. 4 concrete pipe from Mt Newton and Central Saanich Road south to where it crosses Highway 17.

Project Rationale Replacement of a approximately 1.9km of the Main No. 4 concrete pipe from Mt Newton and Central Saanich Road south to where it crosses Highway 17. A Strategic Priorities Fund grant has been applied to fund a portion of the works. Replacement of this pipe is required to improve the seismic resilience of the supply main.

Project Number 23-18 **Capital Project Title** Sooke Lake Dam Spillway Channel Improvements **Capital Project Description** Construct bank protection for the Sooke Spillway Channel and clear the seepage weir blockage.

Project Rationale The Sooke Lake Dam spillway channel requires upgrading to prevent erosion when the sluice gates are fully open. Concurrently, the seepage weir blockage will be removed.

Project Number 23-19 **Capital Project Title** Charters Dam - Implications from Dam Safety Review **Capital Project Description** Carry out recommendations from the 2022 Dam Safety Review for Charters Dam

Project Rationale The Dam Safety Review for Charters Dam was completed in 2022. Funding is required to carry out recommendations from the review.

Project Number 25-03 **Capital Project Title** Transmission Main Upgrade Program **Capital Project Description** Identify, conceptually design, detail design and construct transmission main upgrades.

Project Rationale Transmission mains that are nearing end of life due to long service require condition assessments and then design and construction of replacement mains where needed. This will be the start of an ongoing replacement program as transmission mains near end of life.

Project Number 23-29 **Capital Project Title** Mt. Tolmie Control Valve Replacement **Capital Project Description** Supply and installation of the Mt. Tolmie Reservoir Control Valve

Project Rationale The Mt. Tolmie Reservoir Control Valve is nearing end of life and is in need of replacement prior to failure.

Service: **2.670/2.680** **Regional Water Supply & JdF Water Distribution Combo**

Project Number	16-01	Capital Project Title	Upgrades to Buildings at 479 Island Highway	Capital Project Description	Maintenance and changes to buildings and office layouts.
Project Rationale	<p>The budget includes the following funds to upgrade and renew the buildings at 479 Island Highway:</p> <ul style="list-style-type: none"> • Repairs, upgrades and changes to the buildings (provisional \$50,000) • Painting of the buildings. (provisional \$10,000 annually) • Repair and replacement of carpets, floors and walls. (provisional \$10,000 annually) • Repair, refurbishment and replacement of equipment and property. (provisional \$10,000 annually) 				

Project Number	17-01	Capital Project Title	Voice Radio Upgrade	Capital Project Description	Replacement of end of life voice radio system repeaters, office, vehicle and handheld radios.
Project Rationale	<p>Service Life and projected replacement:</p> <ul style="list-style-type: none"> • The service life of the mobile and portable units was forecast as 10 years at minimum, 15 years at maximum in 2005. • The present radio models used in the system have just been taken out of production by the manufacturer, there will be no new units available for purchase as of July 1, 2015. • Support for repairs and maintenance of the present radio will continue for the next 3 years at least. • There are no pressing issues with equipment maintenance or repairs, present repair rates suggest we can maintain the system for the next few years, and perhaps reach a 12-15 year lifespan on 				

Project Number	20-01	Capital Project Title	Portable Pump Station	Capital Project Description	Portable pump station and generator to provide backup when a pump station is offline, in construction or to bypass a section of pipe.
Project Rationale	<p>The RWS and JdF operation numerous water mains and pump stations. There are situations, when a pump station fails, construction of a pump station or bypassing a section of pipe, where a portable pump station with a generator is required to maintain the level of service. Funds will be used in 2020 to design and in 2021 to procure a portable pump station and generator.</p>				

Project Number	17-03	Capital Project Title	Office Equipment, Upgrades and Replacements	Capital Project Description	Upgrade and replacement of office equipment as required.
Project Rationale	<p>Funds will be used for the replacement and upgrading of office equipment and furniture, as required.</p>				

Service: 2.670/2.680 **Regional Water Supply & JDF Water Distribution Combo**

Project Number	17-04	Capital Project Title	Computer Upgrades	Capital Project Description	Annual upgrade and replacement program for computers, copiers, printers, network equipment as required.
Project Rationale	<p><i>This is an annual upgrading and replacement program of computers, photocopiers, network, monitoring and associated equipment, as required. This item has been increased from \$160,000 to \$170,000 annually to reflect actual costs.</i></p> <p><i>Capital Budget</i> <i>Network Switch Maintenance \$10,000</i> <i>Additional Wireless Access Points and Maintenance \$15,000</i> <i>Photocopier Replacement \$20,000</i> <i>Additional Data Storage \$15,000</i> <i>Replacement Computers \$75,000</i> <i>Equipment Maintenance (contingency) \$23,000</i> <i>Replace Access Control System - Gates/ Video Cameras \$12,000</i> <i>Total Capital \$170,000</i></p>				

Project Number	17-05	Capital Project Title	Development of the Maintenance Management Systems	Capital Project Description	Develop maintenance management system.
Project Rationale	<p><i>The maintenance management system needs further development to meet user needs and to facilitate reporting. It is proposed that funds be approved for the following projects:- Develop and Asset onboarding process and a fault code reporting process for the CMMS.</i></p>				

Project Number	17-06	Capital Project Title	Small Equipment & Tool Replacement (Water Operations)	Capital Project Description	Replacement of tools and small equipment for Water Operations as required.
Project Rationale	<p>Funds will be used for replacement of a variety of Operations and Welding equipment such as cutting saws, portable generators, gas detectors, Hilti drills, plasma cutter, wire welder, etc.</p>				

Project Number	17-07	Capital Project Title	Small Equipment & Tool Replacement (Corporate Fleet)	Capital Project Description	Replacement of tools and small equipment for Fleet as required.
Project Rationale	<p>Funds will be used for replacement of a variety of Fleet small equipment and tools as required. This includes provision to replace the Vehicle OBD reader for reading engine codes and the shop air compressor.</p>				

**2.670 Regional Water Supply
 Asset/ Reserve Schedule
 2023 - 2027 Financial Plan**

Asset Profile

Regional Water Supply

System assets include the lands, dams and source water reservoirs within the water supply areas, intake and source conduits, two water treatment plants, pressure regulating facilities, nine supply mains, three balancing reservoirs and revenue water meters in the water transmission system.

Equipment Replacement Reserve Schedule

Reserve Fund: 2.670 Regional Water Supply Equipment Replacement Reserve (covered by CRD-ERF Bylaw)

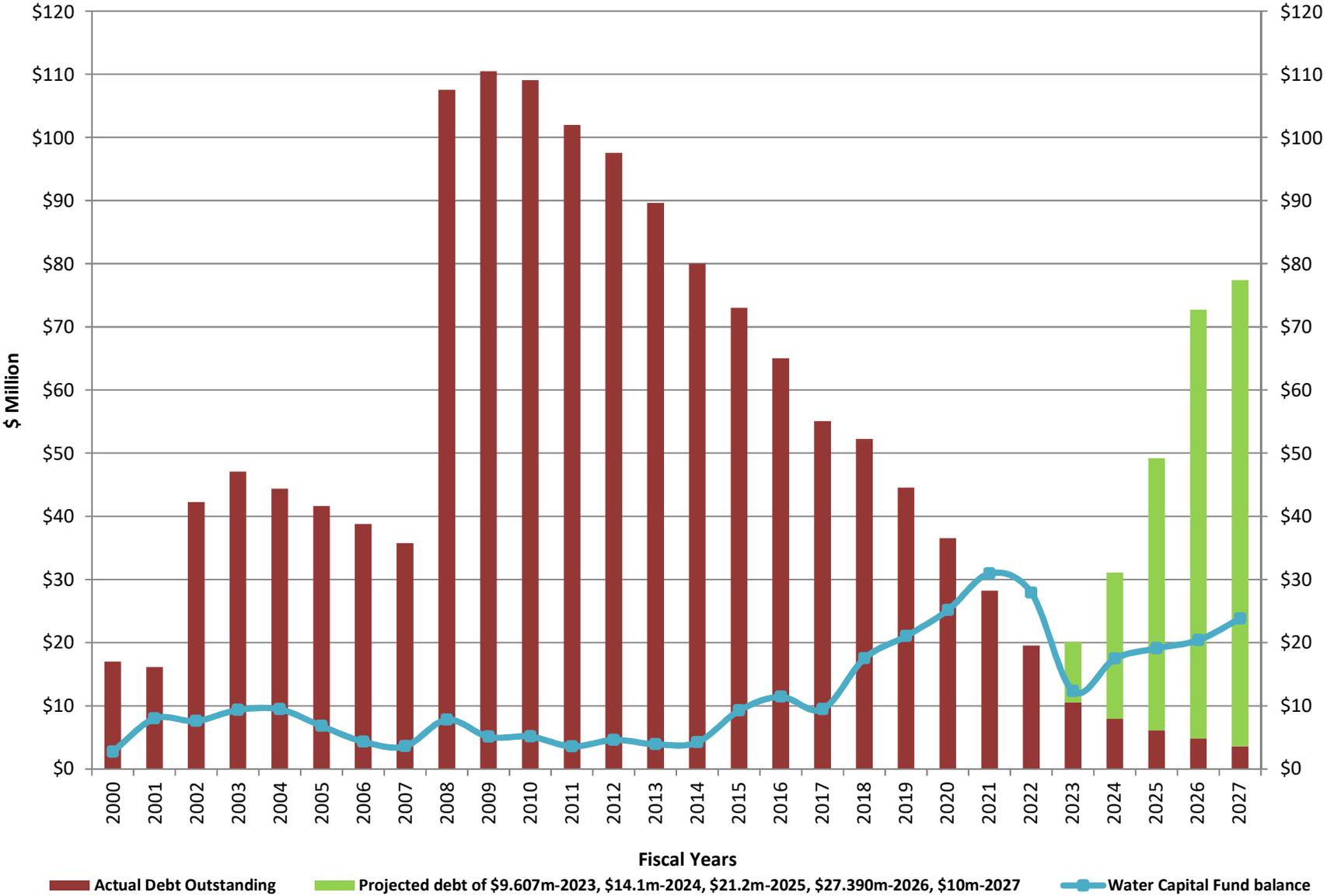
Fund: 1022 Fund Center: 101454

	Estimated	Budget				
	2022	2023	2024	2025	2026	2027
Beginning Balance	2,730,476	2,762,670	2,310,573	2,091,613	2,119,522	2,063,007
Equipment purchases (Based on Capital Plan)	(320,000)	(995,000)	(843,000)	(630,000)	(775,000)	(855,000)
Transfer of assets intracompany	-					
Transfer from Operating Budget	297,540	393,653	497,590	563,409	602,235	638,415
Proceeds on disposals	38,185	149,250	126,450	94,500	116,250	122,250
Interest Income*	16,469					
Ending Balance \$	2,762,670	2,310,573	2,091,613	2,119,522	2,063,007	1,974,672

General Comments:
 Reserve Fund is used for the purpose of replacing fleet vehicles including heavy equipment and associated mobile components, as outlined in the capital plan. Proceeds from disposals are estimated at 15% of replacement equipment purchases. Note not all vehicles are sold within the year in which they are replaced.

* Interest should be included in determining the estimated ending balance for the current year. Interest in planning years nets against inflation which is not included.

Regional Water Supply Service (Greater Victoria) Debt Outstanding vs Water Capital Fund Balance

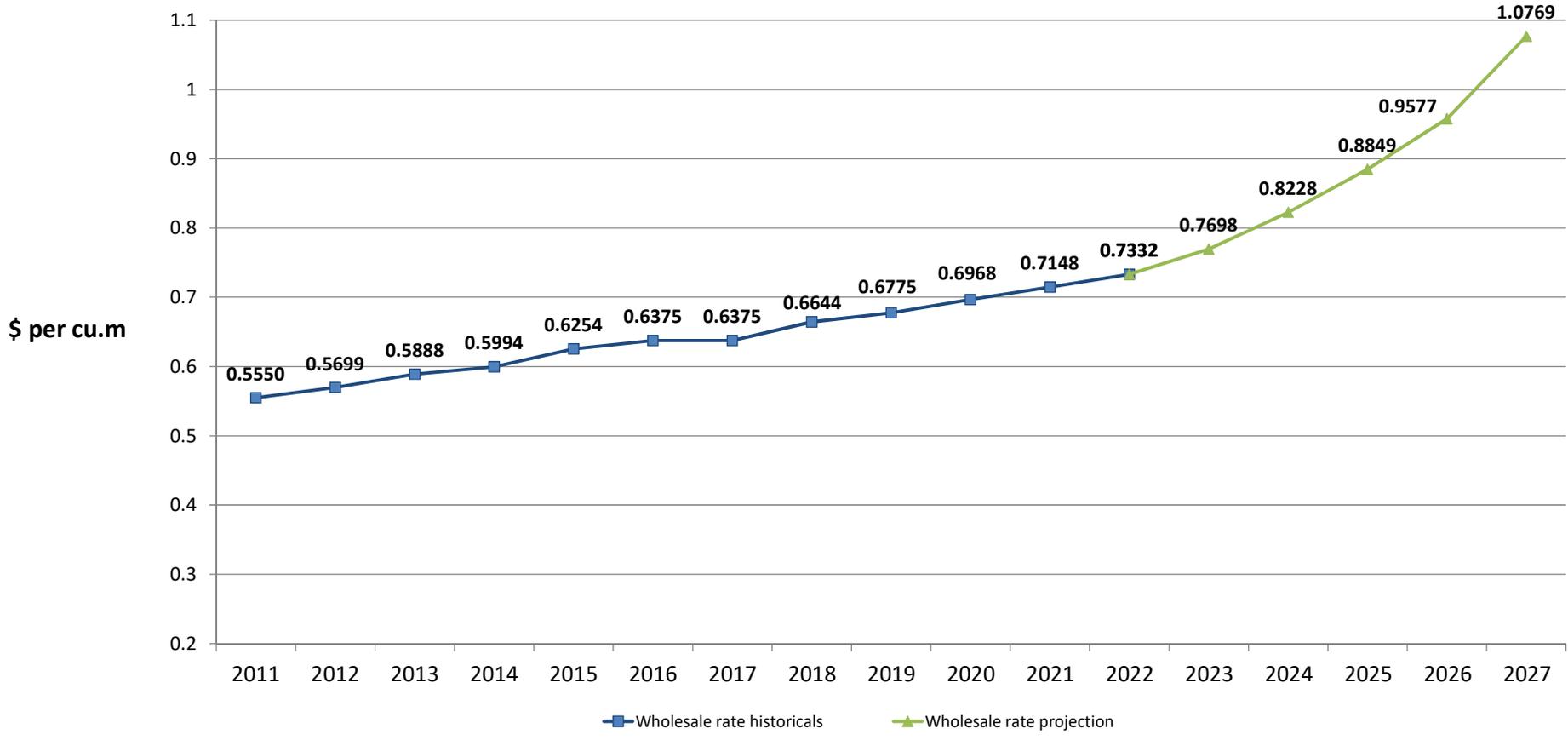


REGIONAL WATER SUPPLY COMMISSION
Agricultural Water Rate Funding Comparisons 2011 - 2021

	No. of AR Accounts	No. of AG Accounts	AR Volume m3	AG Volume m3	Avg AR Volume m3 (Vol/Accts)	Avg AG Volume m3	Agri Rate Consumption Costs	Agri Fixed Charge Costs	Agri Total Subsidy Paid out (Cons + Fixed)	Avg Agri Cost \$ (Paid/Accts)	%age of Total Paid out	Rate Differential		
												Municipal Rate m3	Agri Rate m3	Muni-CRD Diff m3
												A	B	A - B
Western Communities & Sooke *														
2021	84	16	53,773	63,222	640	3,951	\$ 245,409	\$ -	\$ 245,409	\$ 2,454	15.0%	\$ 2,3081	\$ 0.2105	\$ 2.0976
2020	84	15	42,432	51,118	505	3,408	\$ 187,605	\$ -	\$ 187,605	\$ 1,895	11.9%	\$ 2,2159	\$ 0.2105	\$ 2.0054
2019	86	14	36,598	50,277	426	3,591	\$ 165,297	\$ -	\$ 165,297	\$ 1,653	11.1%	\$ 2,1132	\$ 0.2105	\$ 1.9027
2018	95	18	40,657	19,669	428	1,093	\$ 112,411	\$ -	\$ 112,411	\$ 995	7.9%	\$ 2,0739	\$ 0.2105	\$ 1.8634
2017	81	11	33,458	11,628	413	1,057	\$ 76,754	\$ -	\$ 76,754	\$ 834	5.6%	\$ 1,9129	\$ 0.2105	\$ 1.7024
2016	80	11	41,248	8,652	516	787	\$ 84,950	\$ -	\$ 84,950	\$ 934	5.9%	\$ 1,9129	\$ 0.2105	\$ 1.7024
2015	79	11	33,537	7,078	425	643	\$ 64,968	\$ -	\$ 64,968	\$ 722	5.1%	\$ 1,8101	\$ 0.2105	\$ 1.5996
2014	79	11	29,419	9,074	372	825	\$ 60,769	\$ -	\$ 60,769	\$ 675	5.6%	\$ 1,7892	\$ 0.2105	\$ 1.5787
2013	80	11	25,532	5,578	319	507	\$ 46,438	\$ -	\$ 46,438	\$ 510	4.7%	\$ 1,7032	\$ 0.2105	\$ 1.4927
2012	79	13	23,617	5,932	299	456	\$ 40,828	\$ -	\$ 40,828	\$ 444	4.3%	\$ 1,5922	\$ 0.2105	\$ 1.3817
2011	75	11	27,910	4,893	372	445	\$ 43,641	\$ -	\$ 43,641	\$ 507	5.2%	\$ 1,5409	\$ 0.2126	\$ 1.3283
Central Saanich														
2021	277	50	333,385	235,654	1,204	4,713	\$ 844,767	\$ 4,653	\$ 849,420	\$ 2,598	51.9%	\$ 1,8600	\$ 0.2105	\$ 1.6495
2020	278	49	375,646	233,214	1,351	4,759	\$ 873,579	\$ 6,768	\$ 880,347	\$ 2,892	56.0%	\$ 1,8047	\$ 0.2105	\$ 1.5942
2019	276	47	421,804	210,499	1,528	4,479	\$ 862,430	\$ 2,162	\$ 864,592	\$ 2,677	58.0%	\$ 1,7260	\$ 0.2105	\$ 1.5155
2018	278	49	378,593	297,433	1,362	6,070	\$ 866,699	\$ 7,003	\$ 873,702	\$ 2,672	61.3%	\$ 1,6350	\$ 0.2105	\$ 1.4245
2017	296	49	398,087	298,522	1,345	6,092	\$ 792,125	\$ 7,003	\$ 799,128	\$ 2,316	58.7%	\$ 1,5575	\$ 0.2105	\$ 1.3470
2016	297	51	446,241	303,419	1,502	5,949	\$ 879,396	\$ 7,191	\$ 886,587	\$ 2,548	61.1%	\$ 1,5139	\$ 0.2105	\$ 1.3034
2015	294	51	412,060	246,292	1,402	4,829	\$ 739,282	\$ 7,144	\$ 746,426	\$ 2,164	58.4%	\$ 1,4582	\$ 0.2105	\$ 1.2477
2014	294	49	361,801	190,895	1,231	3,896	\$ 596,515	\$ 6,808	\$ 603,323	\$ 1,759	55.7%	\$ 1,4033	\$ 0.2105	\$ 1.1928
2013	296	45	321,518	194,848	1,086	4,330	\$ 542,837	\$ 4,186	\$ 547,023	\$ 1,604	55.7%	\$ 1,3799	\$ 0.2105	\$ 1.0525
2012	280	41	325,663	210,906	1,163	5,144	\$ 518,454	\$ 5,658	\$ 524,112	\$ 1,633	55.6%	\$ 1,2841	\$ 0.2105	\$ 0.9662
2011	210	38	312,702	169,206	1,489	4,453	\$ 462,183	\$ 5,244	\$ 467,427	\$ 1,885	56.1%	\$ 1,2867	\$ 0.2126	\$ 0.9667
North Saanich **														
2021	102	17	48,583	101,688	476	5,982	\$ 210,379	\$ -	\$ 210,379	\$ 1,768	12.9%	\$ 1,6105	\$ 0.2105	\$ 1.4000
2020	102	16	57,433	108,453	563	6,778	\$ 223,532	\$ -	\$ 223,532	\$ 1,894	14.2%	\$ 1,5580	\$ 0.2105	\$ 1.3475
2019	94	15	58,278	95,030	620	6,335	\$ 201,370	\$ -	\$ 201,370	\$ 1,847	13.5%	\$ 1,5240	\$ 0.2105	\$ 1.3135
2018	100	16	97,574	70,666	976	4,417	\$ 220,982	\$ -	\$ 220,982	\$ 1,905	15.5%	\$ 1,5240	\$ 0.2105	\$ 1.3135
2017	100	13	151,773	53,551	1,518	4,119	\$ 245,456	\$ -	\$ 245,456	\$ 2,172	18.0%	\$ 1,4643	\$ 0.2105	\$ 1.2538
2016	100	12	148,450	36,774	1,485	3,065	\$ 230,697	\$ -	\$ 230,697	\$ 2,060	15.9%	\$ 1,4560	\$ 0.2105	\$ 1.2455
2015	106	14	151,656	38,066	1,431	2,719	\$ 230,948	\$ -	\$ 230,948	\$ 1,925	18.1%	\$ 1,4278	\$ 0.2105	\$ 1.2173
2014	98	14	133,853	30,372	1,366	2,169	\$ 194,919	\$ -	\$ 194,919	\$ 1,740	18.0%	\$ 1,3974	\$ 0.2105	\$ 1.1869
2013	102	13	141,845	30,647	1,391	2,357	\$ 200,004	\$ -	\$ 200,004	\$ 1,739	20.4%	\$ 1,3700	\$ 0.2105	\$ 1.1595
2012	99	13	117,497	45,227	1,187	3,479	\$ 188,679	\$ -	\$ 188,679	\$ 1,685	20.0%	\$ 1,3700	\$ 0.2105	\$ 1.1595
2011	101	13	106,393	34,921	1,053	2,686	\$ 163,558	\$ -	\$ 163,558	\$ 1,435	19.6%	\$ 1,3700	\$ 0.2126	\$ 1.1574
Saanich														
2021	74	55	49,933	158,309	675	2,878	\$ 318,923	\$ 11,050	\$ 329,973	\$ 2,558	20.2%	\$ 1,7420	\$ 0.2105	\$ 1.5315
2020	68	53	40,416	144,443	594	2,725	\$ 268,877	\$ 10,867	\$ 279,745	\$ 2,312	17.8%	\$ 1,6650	\$ 0.2105	\$ 1.4545
2019	68	51	37,086	140,512	545	2,755	\$ 249,436	\$ 10,278	\$ 259,714	\$ 2,182	17.4%	\$ 1,6150	\$ 0.2105	\$ 1.4045
2018	70	49	37,503	111,896	536	2,284	\$ 208,786	\$ 9,996	\$ 218,782	\$ 1,839	15.3%	\$ 1,5910	\$ 0.2105	\$ 1.3805
2017	80	50	38,201	132,092	478	2,642	\$ 229,604	\$ 9,719	\$ 239,324	\$ 1,841	17.6%	\$ 1,5600	\$ 0.2105	\$ 1.3495
2016	71	53	36,409	139,764	513	2,637	\$ 237,745	\$ 10,056	\$ 247,802	\$ 1,998	17.1%	\$ 1,5600	\$ 0.2105	\$ 1.3495
2015	75	51	74,841	129,225	998	2,534	\$ 226,276	\$ 9,727	\$ 236,003	\$ 1,873	18.5%	\$ 1,5420	\$ 0.2105	\$ 1.3315
2014	72	53	46,230	177,633	642	3,352	\$ 213,981	\$ 9,883	\$ 223,863	\$ 1,791	20.7%	\$ 1,4560	\$ 0.2105	\$ 1.2455
2013	65	50	35,745	122,456	550	2,449	\$ 179,004	\$ 9,655	\$ 188,659	\$ 1,641	19.2%	\$ 1,3420	\$ 0.2105	\$ 1.1315
2012	68	47	38,212	138,455	562	2,946	\$ 180,466	\$ 9,235	\$ 189,701	\$ 1,650	20.1%	\$ 1,2320	\$ 0.2105	\$ 1.0215
2011	71	46	101,235	121,896	1,426	2,650	\$ 149,584	\$ 9,118	\$ 158,703	\$ 1,356	19.0%	\$ 1,1530	\$ 0.2126	\$ 0.9404
Totals														
2021	537	138	485,674	558,873	904	4,050	\$ 1,619,477	\$ 15,703	\$ 1,635,181	\$ 2,422	100%			
2020	532	133	515,927	537,228	970	4,039	\$ 1,553,594	\$ 17,635	\$ 1,571,229	\$ 2,363	100%			
2019	524	127	553,786	496,318	1,057	3,908	\$ 1,478,533	\$ 12,440	\$ 1,490,973	\$ 2,290	100%			
2018	543	132	554,327	499,664	1,021	3,785	\$ 1,408,879	\$ 16,999	\$ 1,425,878	\$ 2,112	100%			
2017	567	123	621,519	495,793	1,116	4,031	\$ 1,343,940	\$ 16,722	\$ 1,360,663	\$ 2,001	100%			
2016	548	127	672,348	488,609	1,227	3,847	\$ 1,432,788	\$ 17,247	\$ 1,450,036	\$ 2,148	100%			
2015	554	127	672,094	420,661	1,213	3,312	\$ 1,261,474	\$ 16,871	\$ 1,278,344	\$ 1,877	100%			
2014	543	127	571,304	407,973	1,052	3,212	\$ 1,066,184	\$ 16,691	\$ 1,082,874	\$ 1,616	100%			
2013	543	119	524,640	353,529	966	2,971	\$ 968,283	\$ 13,841	\$ 982,124	\$ 1,484	100%			
2012	526	114	504,989	400,520	960	3,513	\$ 928,426	\$ 14,893	\$ 943,320	\$ 1,474	100%			
2011	457	108	548,240	330,916	1,200	3,064	\$ 818,967	\$ 14,362	\$ 833,329	\$ 1,475	100%			

* Western Communities do not charge a fixed charge
 ** North Saanich charges the fixed charge on property taxes
 *** AR - Agriculture/Residential customers receive a rebate on consumption over 455 cubic meters annual as the meter feeds both premise and land.
 AG - Agriculture customers receive a rebate on the entire consumption annually as the meter is dedicated only for land.

Regional Water Supply Service (Greater Victoria) Wholesale Water Rate Historicals & Projections





Making a difference...together

JUAN DE FUCA WATER DISTRIBUTION COMMISSION
Tuesday, September 6, 2022 at 12 PM

MEETING HOTSHEET
(ACTION LIST)

The following is a quick snapshot of the FINAL Juan de Fuca Water Distribution Commission decisions made at the meeting. The minutes will represent the official record of the meeting.

3. ADOPTION OF MINUTES

That the minutes of the July 5, 2022 meeting be adopted.

CARRIED

7. COMMISSION BUSINESS

7.1. Juan de Fuca Water Distribution Service 2023 Capital and Operating Budget

The Juan de Fuca Water Distribution Commission recommends the Committee of the Whole recommend that the Capital Regional District Board:

1. Approve the 2023 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2023 Juan de Fuca Water Distribution Service retail water rate of \$2.5466 per cubic metre, adjusted if necessary, by any change in the Regional Water Supply wholesale water rate;
3. Direct staff to balance the 2022 actual operating deficit or surplus on the 2022 capital fund transfer; and
4. Direct staff to amend the Water Distribution Local Service Conditions, Fees and Charges Bylaw accordingly.

CARRIED

CAPITAL REGIONAL DISTRICT - INTEGRATED WATER SERVICES

Water Watch

Issued September 20, 2022

Water Supply System Summary:

1. Useable Volume in Storage:

Reservoir	September 30 5 Year Ave		September 30/21		September 18/22		% Existing Full Storage
	ML	MIG	ML	MIG	ML	MIG	
Sooke	63,994	14,079	61,087	13,439	70,776	15,571	76.3%
Goldstream	5,635	1,240	6,971	1,534	8,577	1,887	86.5%
Total	69,629	15,318	68,058	14,973	79,353	17,458	77.3%

2. Average Daily Demand:

For the month of September	193.7 MLD	42.61 MIGD
For week ending September 18, 2022	188.4 MLD	41.45 MIGD
Max. day September 2022, to date:	214.3 MLD	47.14 MIGD

3. Average 5 Year Daily Demand for September

Average (2017 - 2021)	151.6 MLD ¹	33.36 MIGD ²
-----------------------	------------------------	-------------------------

¹MLD = Million Litres Per Day ²MIGD = Million Imperial Gallons Per Day

4. Rainfall September:

Average (1914 - 2021):	66.5 mm
Actual Rainfall to Date	1.0 mm (2% of monthly average)

5. Rainfall: Sep 1- Sep 18

Average (1914 - 2021):	31.7 mm
2022	1.0 mm (3% of average)

6. Water Conservation Action Required:

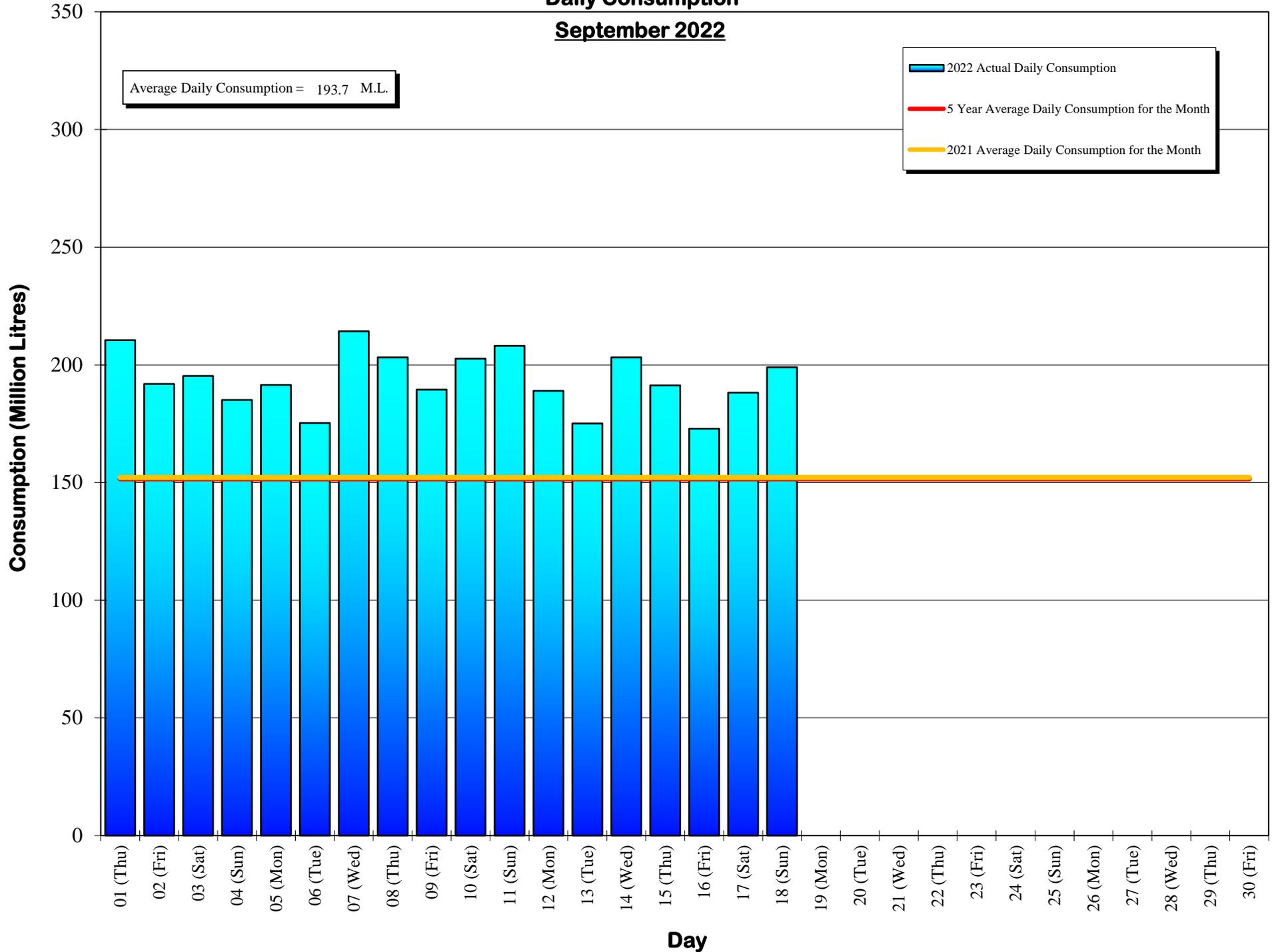
CRD's Stage 1 Water Conservation Bylaw is now in effect through September 30, 2022.
Visit our website at www.crd.bc.ca/water for scheduling information.

If you require further information, please contact:

Ted Robbins, B.Sc., C.Tech
General Manager, CRD - Integrated Water Services
or
Glenn Harris, Ph D., RPBio
Senior Manager - Environmental Protection

Capital Regional District Integrated Water Services
479 Island Highway
Victoria, BC V9B 1H7
(250) 474-9600

Daily Consumption September 2022



Daily Consumptions: - September 2022

Date	Total Consumption		Air Temperature @ Japan Gulch		Weather Conditions	Precipitation @ Sooke Res.: 12:00am to 12:00am			
	(ML) ¹	(MIG) ²	High (°C)	Low (°C)		Rainfall (mm)	Snowfall ³ (mm)	Total Precip.	
01 (Thu)	210.5		46.3	25	14	Sunny	0.0	0.0	0.0
02 (Fri)	191.9		42.2	28	14	Sunny	0.0	0.0	0.0
03 (Sat)	195.3		43.0	26	15	Sunny / P. Cloudy	0.0	0.0	0.0
04 (Sun)	185.1		40.7	20	13	Cloudy / Showers / P. Sunny	1.0	0.0	1.0
05 (Mon)	191.5		42.1	22	11	Sunny / P. Cloudy	0.0	0.0	0.0
06 (Tue)	175.3		38.6	24	10	Sunny / P. Cloudy	0.0	0.0	0.0
07 (Wed)	214.3	<=Max	47.1	24	12	Sunny	0.0	0.0	0.0
08 (Thu)	203.2		44.7	22	9	Sunny	0.0	0.0	0.0
09 (Fri)	189.5		41.7	25	10	Sunny	0.0	0.0	0.0
10 (Sat)	202.7		44.6	27	14	Sunny / Hazy	0.0	0.0	0.0
11 (Sun)	208.1		45.8	26	15	Sunny / P. Cloudy / Hazy	0.0	0.0	0.0
12 (Mon)	189.0		41.6	23	14	Sunny / Hazy	0.0	0.0	0.0
13 (Tue)	175.1		38.5	23	14	Sunny / P. Cloudy	0.0	0.0	0.0
14 (Wed)	203.2		44.7	22	13	Sunny / P. Cloudy	0.0	0.0	0.0
15 (Thu)	191.3		42.1	21	14	Sunny / P. Cloudy	0.0	0.0	0.0
16 (Fri)	172.9	<=Min	38.0	19	11	Sunny / P. Cloudy	0.0	0.0	0.0
17 (Sat)	188.2		41.4	18	10	Sunny	0.0	0.0	0.0
18 (Sun)	199.0		43.8	23	10	Sunny	0.0	0.0	0.0
19 (Mon)									
20 (Tue)									
21 (Wed)									
22 (Thu)									
23 (Fri)									
24 (Sat)									
25 (Sun)									
26 (Mon)									
27 (Tue)									
28 (Wed)									
29 (Thu)									
30 (Fri)									
TOTAL	3486.1 ML	766.94 MIG					1.0	0	1.0
MAX	214.3	47.14	28	15			1.0	0	1.0
AVG	193.7	42.61	23.2	12.4			0.1	0	0.1
MIN	172.9	38.04	18	9			0.0	0	0.0

1. ML = Million Litres

2. MIG = Million Imperial Gallons

3. 10% of snow depth applied to rainfall figures for snow to water equivalent.

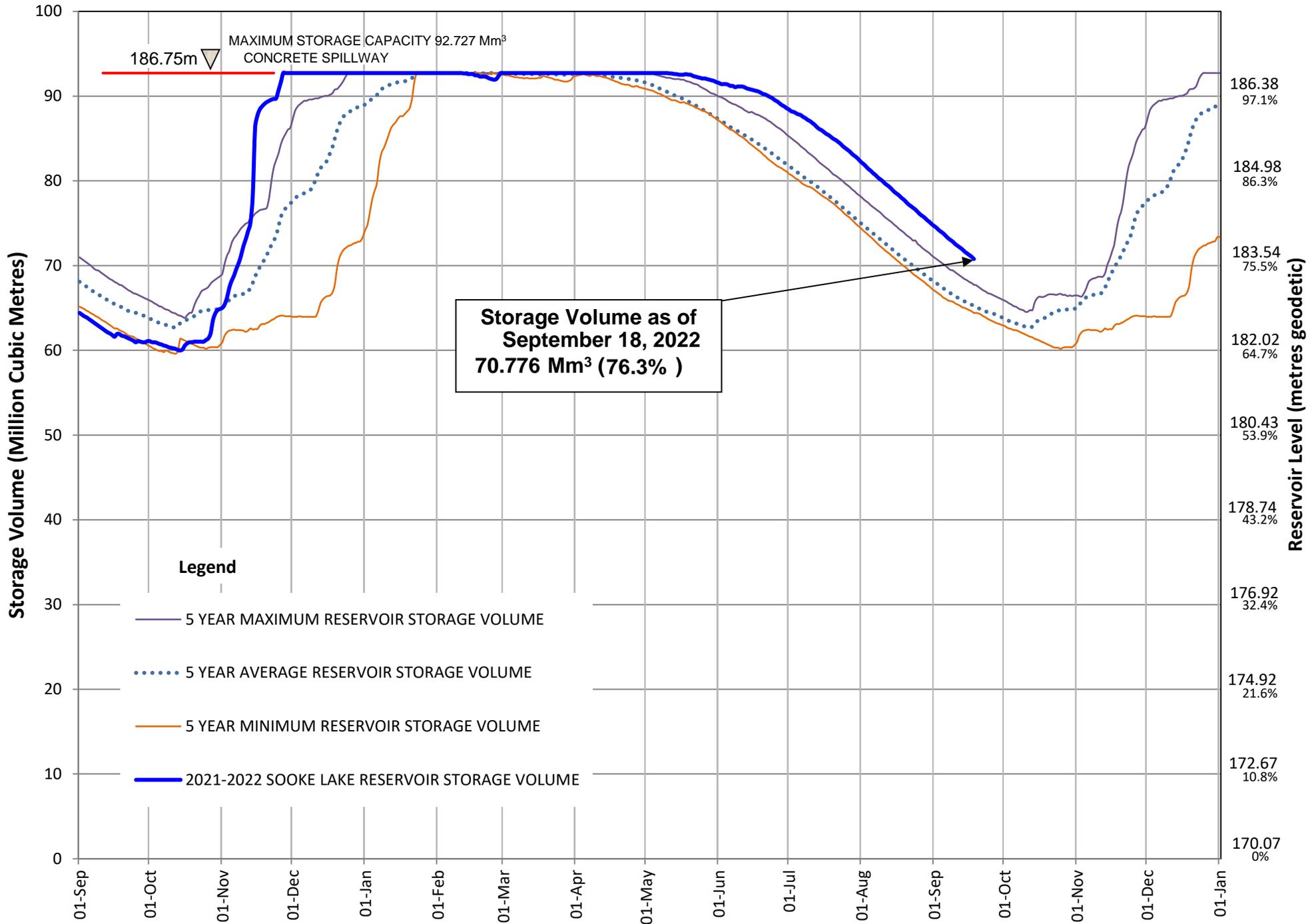
Average Rainfall for September (1914-2021)	66.5 mm
Actual Rainfall: September	1.0 mm
% of Average	2%
Average Rainfall (1914-2021): Sept 01 - Sep 18	31.7 mm
Actual Rainfall (2022): Sept 01 - Sep 18	1.0 mm
% of Average	3%

Number days with precip. 0.2 or more
1

Water spilled at Sooke Reservoir to date (since Sept. 1) = 0.00 Billion Imperial Gallons
 = 0.00 Billion Litres

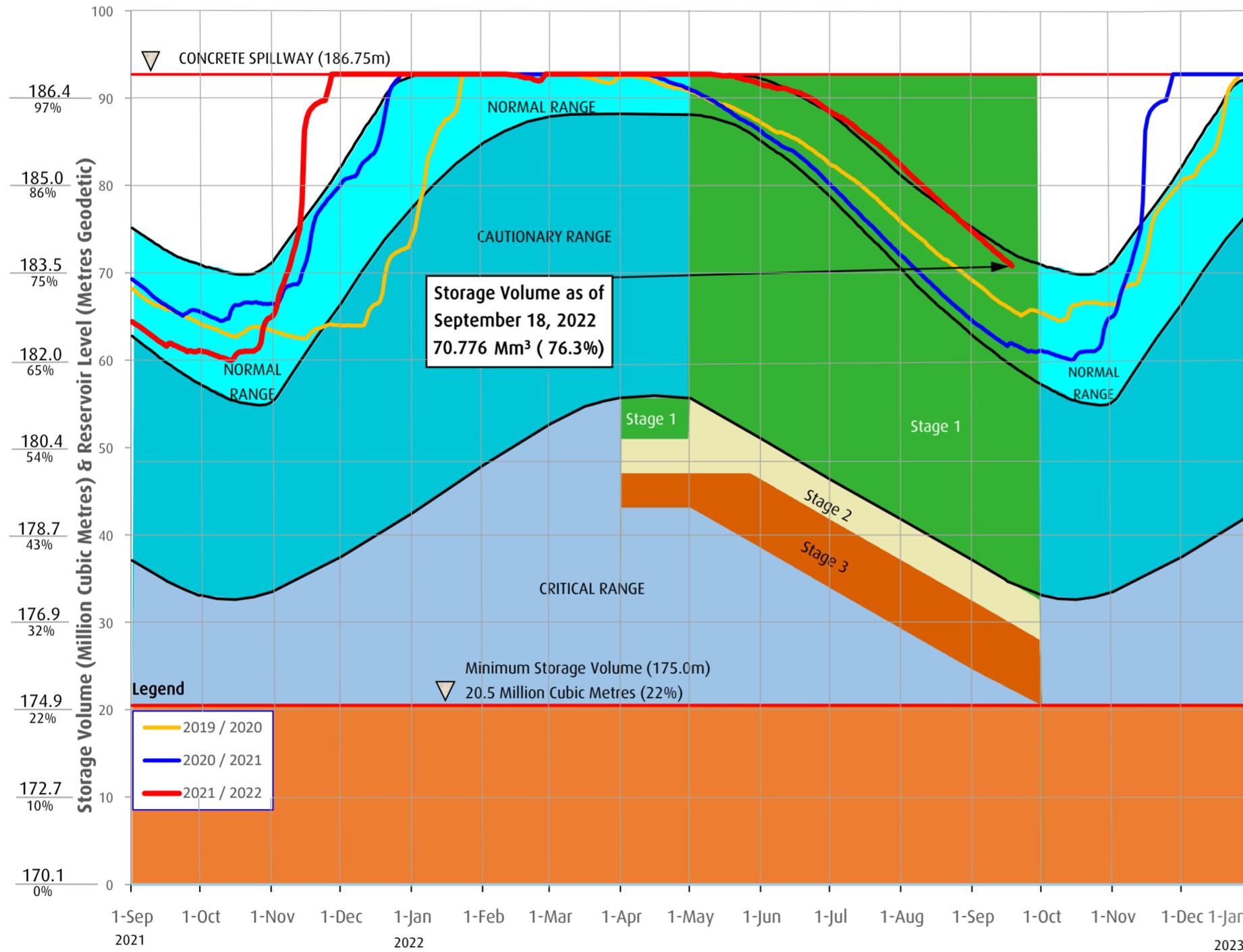
SOOKE LAKE RESERVOIR STORAGE SUMMARY

2021 / 2022



Sooke Lake Reservoir Storage Level

Water Supply Management Plan



FAQs

How are water restriction stages determined?

Several factors are considered when determining water use restriction stages, including,

1. Time of year and typical seasonal water demand trends;
2. Precipitation and temperature conditions and forecasts;
3. Storage levels and storage volumes of water reservoirs (Sooke Lake Reservoir and the Goldstream Reservoirs) and draw down rates;
4. Stream flows and inflows into Sooke Lake Reservoir;
5. Water usage, recent consumption and trends; and customer compliance with restriction;
6. Water supply system performance.

The Regional Water Supply Commission will consider the above factors in making a determination to implement stage 2 or 3 restrictions, under the Water Conservation Bylaw.

At any time of the year and regardless of the water use restriction storage, customers are encouraged to limit discretionary water use in order to maximize the amount of water in the Regional Water Supply System Reservoirs available for nondiscretionary potable water use.

Stage 1 is normally initiated every year from May 1 to September 30 to manage outdoor use during the summer months. During this time, lawn watering is permitted twice a week at different times for even and odd numbered addresses.

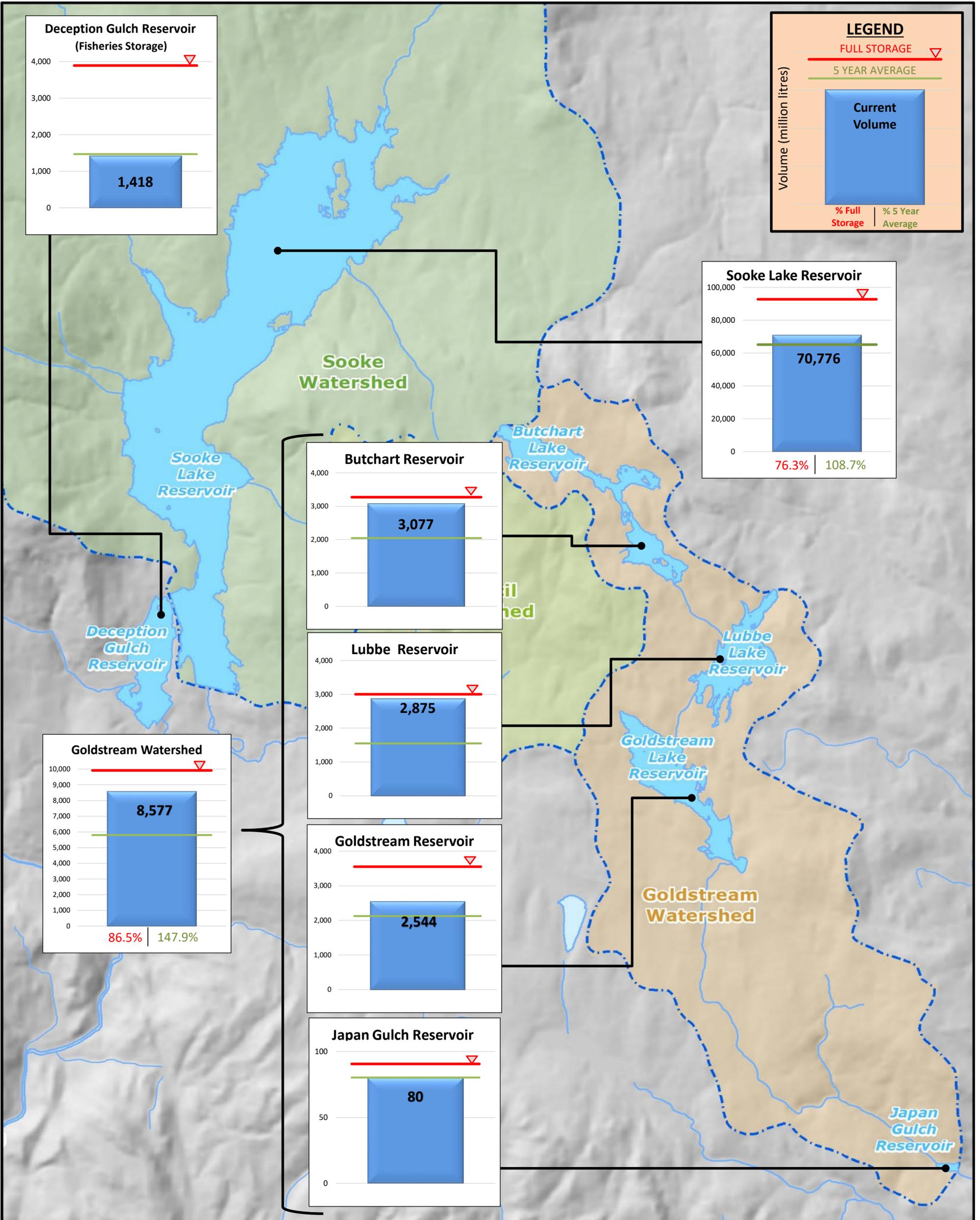
Stage 2 is initiated when it is determined that there is an acute water supply shortage. During this time, lawn water is permitted once a week at different times for even and odd numbered addresses.

Stage 3 is initiated when it is determined that there is a severe water supply shortage. During this time, lawn watering is not permitted. Other outdoor water use activities are restricted as well.

For more information, visit www.crd.bc.ca/drinkingwater

CRD
Making a difference...together

Useable Reservoir Volumes in Storage for September 18, 2022



To: The Chair and Commissioners of the Regional Water Supply Commission

From: Jack Hull, Saanich

Date: September 12, 2022

RE: Capital Regional District Regional Water Supply 2022 Master Plan

The media reports that the CRD Board had approved a \$2 billion plan for the regional water supply system piqued my curiosity as to why such expenditures were necessary. The following are some of my observations on the 2022 Master Plan (the Plan).

While the expenditures would be necessary if the assumptions on which they are based are realised. Throughout the Plan the uncertainty surrounding demand and population growth projections is emphasised. The document states several times that with an achievable reduction in demand, much of the expenditures could be deferred for at least a decade or more. Despite the uncertainty, the report presents a date-based schedule commencing in 2023, rather than a schedule based on the actual demand.

1. Water Supply and Demand

The plan assumes that there will be no further declines in demand but that it will increase at the same rate as the population growth, ignoring the experience of the past 25 years. A similar approach was taken with the 1994 Strategic Plan.

As a result of the very successful demand management program, with the introduction of low water use appliances, and with changes to the plumbing code in 2005 and 2018, total water demand and per-capita demand has been in decline for the last 25 years. During the same period the population has grown by over 30%. During this period water demand has been decoupled from population growth.

Per-capita winter day demand reflecting indoor water use, has been in continuous decline since 1995 to 250 l/c/c in 2019. The plan used a 10-year average of 274 l/c/c for the future projection. An average is only appropriate when there are high and low values in the data set, which is not the case here. Indeed, the value that was used for future projections is 8% higher than the actual average winter per-capita demand of 2019. While 2020 and 2021 data were not presented, it is reasonable to assume that the decline continued. As the proportion of new homes constructed with water efficient appliances including 4.6 litre toilets (not 6 litre as stated in the report) increases, per-capita demand will continue to decline.

2. Water Quality

As stated in the Plan, the Sooke Lake and Goldstream Reservoirs water quality and the CRD's primary and secondary disinfection practices currently meet the requirements of the Provincial Drinking Water Protection Act and associated Regulation as well as Health Canada's Guidelines for Drinking Water Quality.

The Plan clearly states 'The CRD drinking water quality from the Sooke Lake Reservoir is very good and it is difficult to provide economic justification for construction of filtration at this time.'

Despite this fact, the Plan recommends design to be completed by 2032 to enable the plant to be constructed by 2037. The justification for this schedule appears to be the possibility that drought and wildfires may adversely impact water quality, and that regulations may change. The Plan does not address risk mitigation to avoid the \$1 billion expenditure.

Key facts to consider:

- In the drought of 2001, the drawdown of the reservoir was so extreme that the 1915 intake was reactivated. There was no impact on water quality.
- The Plan raises the potential for large-scale catastrophic wildfires in the water supply lands by referencing wildfires in the interior of BC and the Pacific Northwest. Humidity levels are higher in coastal areas, and this area is less prone to lightening strikes, a source on many of the fires in the Interior. Public access to the water supply area is prohibited virtually eliminating the risk of a human caused fire. Finally, the area is patrolled during fire season ensuring a quick response in the event of a fire. Even with very dry summers, for example, 2021 and 2022 catastrophic fires have not occurred on Vancouver Island.
- When the Greater Victoria Water District conducted a commercial logging operation in the water supply lands, harvested areas were replanted with a view to future harvesting. Several thousand trees per hectare were planted resulting in a very dense, unnatural forest cover. Fires in such plantations can spread rapidly. By comparison, old growth tree stands typically have a density range of 125 to 375 trees per hectare. The forest canopy is layered, with openings that allow light, encouraging the growth of understorey vegetation such as ferns, shrubs, mosses and lichens, all of which reduces the potential for catastrophic fires. Implementing a programme to recreate old growth characteristics could mitigate the fire risk. This will take time and need to be adequately resourced. While this would not be a prohibited commercial logging operation, the cost could be offset through the sale of the logs.

3. The Unstated Assumption

The Plan projections assume that the increasing the wholesale rate (from \$0.77 per cubic metre to approximately \$3.5 per cubic metre) will not affect water demand.

For example, for a resident in Saanich using 150 cubic metres in a billing period, the water charge would increase from \$274 to \$689 a 250% increase (using the current Saanich water rate). Homeowners will reduce discretionary water use (e.g., lawn watering) and may install low water use fixtures in older homes. Typically, discretionary water use is more price sensitive than essential water uses (e.g., food preparation and hygiene). Reduced demand will also put upward pressure on water rates to maintain revenue requirements for committed expenditures.

4. Energy Requirements

With implementation of the Plan, all water delivered to member municipalities will no longer be delivered by gravity (zero energy). One hundred percent of the region's water will be delivered by electric motor driven pumps.

Because of the dependence on electricity, back-up generators will be needed to continue service during power outages. If all the pumping stations included in the Plan were constructed, 24 MW in standby

power would be required to ensure continuity of service. To ensure availability generator motors, which use fossil fuels, must be run regularly with the associated carbon footprint.

5. Final observations

As the demand for water continues to be decoupled from population increase, and with concerted action by the CRD to mitigate risk and on-demand management initiatives, most of the capital investments could be deferred for several decades.

If regulations change, such that additional treatment is required, the Regulator will have to provide the necessary lead time to comply. This was the case with the change to the sewage treatment regulation.

As stated in the Plan, the need to proceed with capacity increases depends on actual water demand. Therefore, the actual water demand should be used to initiate Plan implementation rather than the calendar dates based on assumptions presented in the Plan.

If implemented as presented, the Plan will fundamentally change the nature of the Regional Water Supply System transforming it from a low cost, low energy system to one with high costs and high energy requirements.

Thank you for the opportunity articulate my observations on the Plan.