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APPENDIX N-2

RWSC 21-11

REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, OCTOBER 20, 2021

SUBJECT **Regional Water Supply Service - 2022 Operating and Capital Budget**

ISSUE SUMMARY

To provide an overview of the draft 2022 Regional Water Supply Service budget, highlighting the changes from the 2021 budget and the proposed 2022 budget figures. The report generally follows the information provided in the attached draft budget document (Appendix A).

BACKGROUND

The draft 2022 Regional Water Supply Service budget has been prepared for the Regional Water Supply Commission's (Commission) consideration. The Commission will make budget recommendations to the Capital Regional District (CRD) Board through the Committee of the Whole in October, in order to establish the wholesale water rate and approve the rate by year end through adopting a rate bylaw. As in previous years, the draft 2022 Regional Water Supply Service budget has been prepared considering the CRD Board's 2022 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.

2021 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	-$430,174	-2.8%
Agricultural water rate funding	$100,000	6.3%
Capital fund transfers	$2,281,609	23.7%
Debt servicing - principal and interest expenditures	$35,748	-0.4%
Revenue	$1,915,687	5.5%

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 the unseasonal weather during the spring and summer resulting in higher water demand than budgeted. It is proposed to transfer the revenue surplus to the capital reserve fund and reduce the borrowing requirement in 2022.

2022 Budget

Rate Base

The rate base for 2022 has increased by $4,706,828 from 2021. This increase relates to physical plant additions, including the final capitalization 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 2021 year end total physical plant value and determine the 2022 rate base.

Revenue Requirement

The revenue requirement for 2022 has increased by $1,619,597. This is resulting from an increase in operational expenses of $808,081, an increase in depreciation expenses of $897,416, net of expired depreciation on existing assets, offset by a decrease in the return on the rate base of $85,900. Although the asset base continues to grow, the decrease in the return on the rate base for 2022 occurs due to lower debt levels in the service.

Operating Budget

The 2022 operating budget reflects an inflationary increase in non-discretionary expenses such as negotiated wage/salary increases, departmental support service allocation increases, and other operating expense adjustments such as chemical and electricity costs. The net core 2022 operating budget increase is $391,081, plus additional budget requests for one-time and on-going expenditures in the amounts of $175,000 and $142,000 respectively. These budget adjustments are summarized as follows:

- $25,000 one-time funding (year five of five) to support the on-going National Science and Engineering Research Council (NSERC) watershed research.
- $150,000 one-time funding for field sampling/consulting services to establish baseline water quality and hydrology data in the Leech River – consulting contracts were funded through 2020 and 2021 one-time budget increases; in year 2024, staff will determine the on-going requirement.
- $55,000 labour budget increase (Regional Water Supply share) for FTE (full time equivalent staff position) – Infrastructure Integration Technician to on-board new assets and develop asset plans for the service life of the assets in accordance with the Corporate Asset Management Strategy.
- $438,000 labour budget increase for reassignment of 3.0 FTEs from the Capital Program to Goldstream Water Treatment Operations – this reassignment is in order to meet Provincial Environmental Operator Certification Program requirements and minimum staffing levels for continuous operations; the labour costs are now associated with the operating budget rather than the capital budget.
- $87,000 labour budget increase (Regional Water Supply share) for FTE – Contracts Coordinator to provide cross-departmental contract coordination and support corporate procurement policies and procedures for construction and service contracts; the function was previously included under a committee clerk role so this initiative results in a dedicated Contracts Coordinator role.

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 2023-2026 have been presented for information.

Capital Budget

There are a number of capital projects planned for 2022 with a total value of $26,697,250, including $9,946,000 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, and the Transmission Main No.4 segment replacement project. There is also $2,240,000 in projects cost-shared with the Juan de Fuca Water Distribution Service (pages 11-47 of the budget document). The major projects in 2022, aside from the carry forward projects, include replacing the gatehouse at the Goldstream entrance to the water supply area and beginning the process of designing and constructing a new watershed field operations building, replacement of the ultraviolet disinfection equipment at the Goldstream Water Treatment Plant, and starting detailed design work for the Transmission Main No. 3 segment replacement project.

A five year capital plan has been presented for information. The value of the five-year (2022-2026) capital plan is currently $99,898,250, plus $3,800,000 in projects cost-shared with the Juan de Fuca Water Distribution Service.

Capital and Debt Expenditures

The 2022 capital expenditures will be partially funded through a transfer to the water capital fund budgeted at $10,152,385, with the balance funded from existing cash reserves and borrowed funds. See pages 11-12 of the budget document for the funding source summary. 2022 debt expenditures for existing debt servicing are budgeted to be $8,292,927. Debt servicing expenditures will decrease by $40,740 over 2021. Additional projected water sales revenue and corresponding capital reserve fund transfer will reduce the borrowing needs in 2022. A new loan authorization in the amount of $46,000,000 was approved this year 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 2038-2040	$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. The percentage of revenue dedicated to debt costs is forecast to be between 8-23%, which is less than an annual benchmark rate of 25%, albeit close to the upper recommended limit until the Leech Water Supply Area land acquisition debt is retired in 2023. Additionally, the debt funding for capital investment over the next five years does not exceed 40%. A summary indicator table is provided below:

Year	% Revenue for Debt	Capital Funded by Debt
2022	22.7%	0%
2023	20.2%	38.4%
2024	8.7%	32.3%
2025	8.2%	28.1%
2026	7.9%	0.0%

A $314,181 transfer to the vehicle/equipment replacement fund is planned in 2022. The reserve fund balance is estimated at $2,700,884 at year end 2021 (See reserve schedule – Page 48 of the budget document).

Agricultural Water Rate Funding

The total budget for the agricultural water rate funding has been increased by $100,000 to $1,700,000. The 2022 agricultural water rate has been maintained at the 2021 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 will be undertaken in 2021/2022. A summary of the agricultural water volumes and agricultural water rate payments for 2011 to 2020 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, combined with one of the hottest and driest years on record, is expected to result in actual demand exceeding budget demand in 2021; the 2021 year-end demand is projected to be 2,500,000 cubic metres over budget at 50,500,000 cubic metres.

The recommended 2022 water rate has been calculated using a budget demand of 49,000,000 cubic metres (Page 8 of the budget document), which is 1,000,000 cubic metres more than the volume used in the 2021 budget.

Proposed 2022 Wholesale Water Rate

The recommended wholesale water rate has taken into consideration the revenue required to meet operating and capital expenditures, including debt obligations and the budget demand volume established for 2022. The proposed 2022 wholesale rate is $0.7332 per cubic metre, a

2.57% increase over the 2021 rate. The increase in annual bulk water cost for the average household using 235 cubic metres per year would be $4.32 (Page 9 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.

Alternative 1
That the Regional Water Supply Commission recommends the Committee of the Whole recommends to the Capital Regional District Board to:

1. Approve the 2022 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2022 wholesale water rate of $0.7332 per cubic metre;
3. Approve the 2022 agricultural water rate of $0.2105 per cubic metre;
4. Direct staff to balance the 2021 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
That the Regional Water Supply Commission recommends the Committee of the Whole recommends to the Capital Regional District Board to:

1. Approve the 2022 Operating and Capital Budget and the Five Year Capital Plan as amended;
2. Approve the 2022 wholesale water rate as amended (amended rate);
3. Approve the 2022 agricultural water rate of $0.2105 per cubic metre;
4. Direct staff to balance the 2021 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 2022, the rate and rate methodology is under review this year and the Commission will consider the rate review recommendations in 2022.

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; the Juan de Fuca Water Distribution Commission has approved their proposed 2022 budget and rate and the Saanich Peninsula Water Commission will consider their 2022 budget on October 21.

CONCLUSION

The draft 2022 Regional Water Supply Service budget has been prepared for the Regional Water Supply Commission's consideration. The budget has been prepared considering the Commission and CRD Board's 2022 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 $0.7332 per cubic metre, a 2.57% increase over the 2021 rate.

RECOMMENDATION

That the Regional Water Supply Commission recommends the Committee of the Whole recommends to the Capital Regional District Board to:

1. Approve the 2022 Operating and Capital Budget and the Five Year Capital Plan;
2. Approve the 2022 wholesale water rate of $0.7332 per cubic metre;
3. Approve the 2022 agricultural water rate of $0.2105 per cubic metre;
4. Direct staff to balance the 2021 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, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Larisa Hutcheson, P. Eng., 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: 2022 Regional Water Supply Service Budget
Appendix B: Long Term Debt Obligations Summary
Appendix C: Agricultural Water Volumes and Rate Payments for 2011 – 2020
Appendix D: Wholesale Water Rate History and Projection

CAPITAL REGIONAL DISTRICT

2022 BUDGET

Regional Water Supply

COMMISSION REVIEW

OCTOBER 2021

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:		$137,700,000	Pre - (Consolidated MFA Loan Authorizations - Regional Water Supply Water Works Facilities)
Borrowed:		$91,400,000	Pre - (Consolidated amounts borrowed - Regional Water Supply Water Works Facilities)
Remaining:	Expired	$46,300,000	
Authorized:		$60,000,000	(MFA Bylaw No. 3451 - Regional Water Supply Land Acquisition)
Borrowed:		$60,000,000	(MFA Bylaw No. 3451 - Regional Water Supply Land Acquisition)
Authorized:		$12,500,000	2014 - (MFA Bylaw No. 3902 - Regional Water Supply Water Works Facilities)
Borrowed:		$9,500,000	
Remaining:	Expired	$3,000,000	
Authorized:		$46,000,000	2021 - (MFA Bylaw No. 4382 - Regional Water Supply Water Works Facilities)
Borrowed:		$0	
Remaining:		$46,000,000	

FUNDING:

Costs are recovered through the sale of bulk water.

Rate Base for 2022 Revenue Year

	2020 Application	2021 Application	End of 2021 for '22 Applic.	Change	
Wholesale System					
Physical Plant	$ 231,437,695	$ 231,156,835	$ 233,870,414	$ 2,713,579	Note 1
Construction Work In Progress	6,285,937	8,055,763	9,949,386	1,893,623	Note 1
Cash Working Capital	1,991,738	2,088,652	2,188,278	99,626	
Inventory	225,000	225,000	225,000	-	
Total Wholesale Rate Base	$ 239,940,370	$ 241,526,250	**$ 246,233,078**	$ 4,706,828	

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

Revenue Requirements for 2022 Year

	2020 Application	2021 Application	2022 Application	Change	
Wholesale					
Operations & maintenance	$ 16,155,207	$ 16,941,286	$ 17,749,367	$ 808,081	
Depreciation	6,243,311	6,694,087	7,591,503	$ 897,416	
Return on rate base	11,626,400	11,252,300	11,166,400	$ (85,900)	Note 1
Subtotal of above	$ 34,024,918	$ 34,887,673	$ 36,507,270	$ 1,619,597	
Non-rate revenue including unaccounted water revenue	(582,060)	(582,060)	(582,060)	$ -	
Total wholesale	$ 33,442,858	$ 34,305,613	$ 35,925,210	$ 1,619,597	

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

APPENDIX A

Schedule of Change in Physical Plant & Work In Progress

Wholesale

Projected Asset Additions	Projected Assets Capitalized
Lubbe Dam Safety Improvements	$ 2,975,025
Sooke Intake Screens Condition Assessment/Replacement	2,136,485
Land Acquisition - Grant Lake Parcel	655,432
Meter Replacement	386,353
Kapoor Tunnel Repairs	365,848
Watershed Security Enhancements	335,000
Goldstream Water Supply Area Bridge	325,000
Stelly's Pump Station Assessment	308,637
Leech River Restoration	300,231
Valve Chamber Upgrades	300,000
Japan Gulch Treatment Plant Upgrades	275,000
Gravel Crushing	220,000
Major Main Repairs	200,000
SCADA	160,000
Watershed Culvert Replacement	145,000
Sooke Spillway Gate Standby Power	143,852
Water Supply Eqpt Upgrades	130,000
Building Modification	120,211
Water Supply Equipment Upgrades	120,000
Air Curtain Burner	100,000
Post Disaster Emergency Water Supply	96,272
Transmission System Component Replacement	95,000
Goldstream Field Operations Centre	89,082
Goldstream Gate Upgrade	75,000
Meter Station Backflow Installation	75,000
Sooke River Road Disinfection Facility Upgrade	75,000
Cathodic Protection Program	74,625
Watershed Facilities Upgrade	64,932
Gravel Road Compactor	60,000
Corrosion Protection	50,000
Humpback Overflow Channel Assessment	50,000
Other Projects (15 minor projects under $50k)	224,704
Total projected assets capitalized	$ 10,731,689
Less: current year's depreciation	(6,408,545)
Less: change in prior year forecast addition estimates, & disposals	(1,609,565)
Change in Physical Plant	$ 2,713,579

Projected Construction Work In Progress (CWIP)	Projected Assets CWIP
Sooke Intake Screens	$ 1,492,315
Butchart Dam #5 Remediation	1,240,935
Post Disaster Emergency Water Supply	737,173
Sooke Dam Safety Improvements	647,152
Dam Safety Review	605,023
SCADA Repairs and Equipment Replacement	400,000
Dam Actuators	264,966
Radio Upgrades	250,000
Dam Improvements	200,000
Lab Information Management System	200,000
Treatment Plan Communications Upgrade	200,000
Cathodic Protection Program	192,362
SCDA Repairs and Equipment Replacement	189,810
Strategic Asset Management Plan	179,380
Critical Equip Storage Building	152,759
Risk and Resilience Assessment	150,698
Japan Gulch Treatment Plant Upgrades	150,000
Water Quality Main Lab Renovation	140,140
Flowcam Imaging System	140,000
Hydraulic Capacity Assessment	136,602
Meter Replacement	122,353
Reservoir Log Boom Replacement	111,759
Goldstream Field Operations Centre	100,000
Treatment Plant Emergency Automation	100,000
SCADA Integration	97,967
Dam Emergency Plan & Manual Updates	90,593
Dam Decommissioning	84,874
Water Quality Database Upgrade	80,022
Building Modification	79,415
Seismic Assessment	75,532
Supply System Vulnerability Assessment	75,464
Asset Reconciliation/Transfer agreement study	70,171
Saddle Dam Piezometer	66,936
High Level Output Valve Replacement	65,874
Goldstream Chlorination System Removal	60,000
Sooke Lake Dam Spillway Hoist	60,000
Transmission system component upgrades	55,151
Leech River Restoration	55,000
Valve Replacement	50,618
Pump Stations	50,000
Sooke Lake Hydrodynamic Model	50,000
Other Projects (43 minor projects under $50k)	678,342
Projected CWIP	$ 9,949,386
Less Prior year's projected CWIP	(8,055,763)
Change in CWIP	$ 1,893,623

Schedule A
Asset Useful Life Assignments - PSAB

Classes:	Code	Asset Categories	Useful Life, Years
Land	LAND	Land & Rights of Way * (Note 1)	N/A
Building	BLDG	Building, Permanent	50
	BLOT	Building, Temporary/ Portable	20
	BLFX	Building fixture (*sprinklers)*	20
Equipment	BOAT	Boats & Marine Equipment	10
	COMP	Computer Equipment (*includes software*)	5
	ELEC	Electronic Equipment(*hydromet, weather stn eqpt)*	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 *(stop logs)*	20
	SHOP	Shop Equipment	10
	TELE	Telecommunication Eqpt (*radios, phone systems*)	10
	WEQP	Water Works Eqpt(*W.Quality lab, Wshed eqpt)*	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.

Change in Budget 2021 to 2022 **Service: 2.670 Regional Water Supply**	**Total Expenditure**	**Comments**
2021 Budget	**34,921,283**	
Change in Salaries:		
Change in Labour	438,000	Repurpose 3.0 FTEs from Capital to Operating
1.0 FTE Infrastructure Integration Technician	55,000	IBC 10a-2 Infrastructure Integration Technician
1.0 FTE Contracts Coordinator	87,000	IBC 10e-1 IWS Administrative Contracts Coordinator
Other Labour	81,207	
Total Change in Salaries	661,207	
Other Changes:		
Transfer to Capital Fund	850,646	
Contract for Services	(25,000)	2021 NSERC funding
Contract for Services	25,000	2022 NSERC funding
Contract for Services	(150,000)	IBC 10d-3 2021 Watershed Hydrology Monitoring
Contract for Services	150,000	IBC 10d-3 2022 Watershed Hydrology Monitoring
Principal & Interest Payments	(40,740)	
Agriculture Water Rate Funding	100,000	
Other Costs	46,874	
Total Other Changes	956,780	
2022 Budget	**36,539,270**	
% expense increase from 2021:	***4.6%***	

Overall 2021 Budget Performance
(expected variance to budget and surplus treatment)

Favourable water sales variance of $1,792,000 (5.1%) due to higher than budgeted water sales largely a result of increased temperatures. There is an additional favourable operating variance of $529,000 (1.5%) largely due to reduced staffing costs from vacant positions. The net surplus of $2,300,000 will be transferred to the services' Water Capital Fund.

2022 Demand Estimate

Wholesale Demand

Years	Actual Demand cu.metre	Budgeted Demand cu.metre
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	50,500,000*	48,000,000
2022 Demand Estimate	**49,000,000**	

** Projected consumption for 2021*

Summary of Wholesale Water Rates

	2018	2019	2020	2021	2022	Change
Wholesale water rate						
Unit cost per cu.m.	$0.6644	$0.6775	$0.6968	$0.7148	$0.7332	$0.0184

Wholesale Water Rate Increase
Impact on Residential Water Bill

Average Annual Consumption : 235.0 cubic metres

Charge for Twelve Months Consumption		Annual Charge	2022 Annual Change $
Average Consumption	2021 Year	$ 167.98	
	2022	$ 172.30	$ 4.32
Half Average Consumption	2021 Year	$ 83.99	
	2022	$ 86.15	$ 2.16
Twice Average Consumption	2021 Year	$ 335.96	
	2022	$ 344.60	$ 8.65

CAPITAL REGIONAL DISTRICT

Program Group: CRD-Regional Water Supply

SUMMARY	2021 BOARD BUDGET	2021 ESTIMATED ACTUAL	2022 BUDGET REQUEST: 2022 CORE BUDGET	2022 ONGOING	2022 ONE-TIME	TOTAL (COL 4, 5 & 6)	FUTURE PROJECTIONS: 2023	2024	2025	2026
1	2	3	4	5	6	7	8	9	10	11
GENERAL PROGRAM EXPENDITURES:										
WATERSHED PROTECTION	5,568,054	5,396,029	5,515,703	-	175,000	5,690,703	5,626,017	5,738,538	5,853,308	5,970,374
WATER MANAGEMENT	5,610,530	5,562,367	6,272,411	-	-	6,272,411	6,397,555	6,525,042	6,654,842	6,787,485
WATER QUALITY	1,830,256	1,932,040	1,862,117	-	-	1,862,117	1,894,732	1,934,572	1,975,240	2,016,770
CROSS CONNECTION	737,690	736,076	754,239	-	-	754,239	769,271	784,643	800,308	816,283
DEMAND MANAGEMENT	686,034	659,157	705,184	-	-	705,184	719,221	733,564	748,216	763,160
INFRASTRUCTURE ENGINEERING	486,900	529,130	496,982	-	-	496,982	506,930	517,070	527,420	537,960
FLEET OPERATION & MAINTENANCE	(297,540)	(240,433)	(314,181)	-	-	(314,181)	(320,470)	(326,880)	(333,420)	(340,090)
CUSTOMER TECHNICAL SERVICES & GM SUPPORT *	719,362	336,746	439,912	142,000	-	581,912	594,126	606,618	619,364	632,350
TOTAL OPERATING EXPENDITURES	15,341,286	14,911,112	15,732,367	142,000	175,000	16,049,367	16,187,382	16,513,167	16,845,278	17,184,292
Percentage increase over prior year's board budget			2.55%			4.62%	0.86%	2.01%	2.01%	2.01%
AGRICULTURAL WATER RATE FUNDING	1,600,000	1,700,000	1,700,000	-	-	1,700,000	1,750,000	1,800,000	1,850,000	1,900,000
			6.25%			6.25%	2.94%	2.86%	2.78%	2.70%
CAPITAL EXPENDITURES &TRANSFERS										
TRANSFER TO WATER CAPITAL FUND	9,297,180	11,596,789	10,152,385	-	-	10,152,385	11,650,000	16,950,000	18,600,000	19,800,000
TRANSFER TO EQUIPMENT REPLACEMENT FUND	297,540	297,540	314,181	-	-	314,181	320,465	326,874	333,411	340,080
TRANSFER TO DEBT RESERVE FUND	51,610	33,610	30,410	-	-	30,410	127,410	101,410	93,810	30,410
TOTAL CAPITAL EXPENDITURES & TRANSFERS	9,646,330	11,927,939	10,496,976	-	-	10,496,976	12,097,875	17,378,284	19,027,221	20,170,490
DEBT SERVICING										
DEBT - INTEREST & PRINCIPAL	8,333,667	8,297,919	8,292,927	-	-	8,292,927	7,592,710	3,408,010	3,379,253	3,357,424
TOTAL DEBT EXPENDITURES	8,333,667	8,297,919	8,292,927	-	-	8,292,927	7,592,710	3,408,010	3,379,253	3,357,424
DEFICIT TRANSFERRED TO FOLLOWING YR										
TRANSFER TO FOLLOWING YEAR DEFICIT CARRY FORWARD										
TOTAL EXPENDITURES	34,921,283	36,836,970	36,222,270	142,000	175,000	36,539,270	37,627,967	39,099,461	41,101,752	42,612,206
SOURCES OF FUNDING										
REVENUE - SALES	(34,305,613)	(36,097,400)	(35,609,800)	(142,000)	(175,000)	(35,926,800)	(37,015,497)	(38,486,991)	(40,489,282)	(41,999,736)
REVENUE - OTHER	(615,670)	(739,570)	(612,470)	-	-	(612,470)	(612,470)	(612,470)	(612,470)	(612,470)
TOTAL SOURCE OF FUNDING FROM OPERATIONS	(34,921,283)	(36,836,970)	(36,222,270)	(142,000)	(175,000)	(36,539,270)	(37,627,967)	(39,099,461)	(41,101,752)	(42,612,206)
TRANSFER FROM PRIOR YEAR	-	-	-	-	-	-	-	-	-	-
TRANSFER TO FOLLOWING YEAR SURPLUS CARRY FORWARD										
TOTAL SOURCES OF FUNDING	(34,921,283)	(36,836,970)	(36,222,270)	(142,000)	(175,000)	(36,539,270)	(37,627,967)	(39,099,461)	(41,101,752)	(42,612,206)
Percentage increase over prior year's board budget			3.73%			4.63%	2.98%	3.91%	5.12%	3.67%

CAPITAL REGIONAL DISTRICT

FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2022 to 2026

Service No. 2.670 Regional Water Supply	Carry Forward from 2021	2022	2023	2024	2025	2026	TOTAL
EXPENDITURE							
Buildings	$510,000	$5,110,000	$3,020,000	$20,000	$0	$0	$8,150,000
Equipment	$1,060,000	$7,115,000	$2,970,000	$940,000	$760,000	$610,000	$12,395,000
Land	$445,000	$1,495,000	$895,000	$590,000	$430,000	$235,000	$3,645,000
Engineered Structures	$7,525,000	$11,550,000	$17,735,000	$19,925,000	$20,725,000	$3,000,000	$72,935,000
Vehicles	$406,000	$1,427,250	$406,000	$290,000	$450,000	$200,000	$2,773,250
	$9,946,000	**$26,697,250**	**$25,026,000**	**$21,765,000**	**$22,365,000**	**$4,045,000**	**$99,898,250**
SOURCE OF FUNDS							
Capital Funds on Hand	$9,655,000	$22,952,000	$12,420,000	$14,375,000	$15,575,000	$3,845,000	$69,167,000
Debenture Debt (New Debt Only)	$0	$0	$9,700,000	$7,100,000	$6,340,000	$0	$23,140,000
Equipment Replacement Fund	$291,000	$1,205,250	$406,000	$290,000	$450,000	$200,000	$2,551,250
Grants (Federal, Provincial)	$0	$40,000	$0	$0	$0	$0	$40,000
Donations / Third Party Funding	$0	$2,500,000	$2,500,000	$0	$0	$0	$5,000,000
Reserve Fund	$0	$0	$0	$0	$0	$0	$0
	$9,946,000	**$26,697,250**	**$25,026,000**	**$21,765,000**	**$22,365,000**	**$4,045,000**	**$99,898,250**

CAPITAL REGIONAL DISTRICT

FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2022 to 2026

Service No.	2.670/2.680 Regional Water Supply & JDF Water Distribution Combo	Carry Forward from 2021	2022	2023	2024	2025	2026	TOTAL
EXPENDITURE								
Buildings		$0	$80,000	$80,000	$80,000	$80,000	$80,000	$400,000
Equipment		$800,000	$2,160,000	$330,000	$330,000	$330,000	$250,000	$3,400,000
Land		$0	$0	$0	$0	$0	$0	$0
Engineered Structures		$0	$0	$0	$0	$0	$0	$0
Vehicles		$0	$0	$0	$0	$0	$0	$0
		$800,000	**$2,240,000**	**$410,000**	**$410,000**	**$410,000**	**$330,000**	**$3,800,000**
SOURCE OF FUNDS								
Capital Funds on Hand		$800,000	$2,240,000	$410,000	$410,000	$410,000	$330,000	$3,800,000
Debenture Debt (New Debt Only)		$0	$0	$0	$0	$0	$0	$0
Equipment Replacement Fund		$0	$0	$0	$0	$0	$0	$0
Grants (Federal, Provincial)		$0	$0	$0	$0	$0	$0	$0
Donations / Third Party Funding		$0	$0	$0	$0	$0	$0	$0
Reserve Fund		$0	$0	$0	$0	$0	$0	$0
		$800,000	**$2,240,000**	**$410,000**	**$410,000**	**$410,000**	**$330,000**	**$3,800,000**

CAPITAL REGIONAL DISTRICT
5 YEAR CAPITAL PLAN
2022 - 2026

Project Number
Project number format is "yy-##"
"yy" is the last two digits of the year the project is planned to start.
"##" is a numberical value. For example, 22-01 is a project planned to start in 2022.

For projects in previous capital plans, use the same project numbers previously assigned.

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

Capital Project Title
Input title of project. For example "Asset Name - Roof Replacement", "Main Water Pipe Replacement".

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 is built current energy standards, designed to minimize maintenance and have an expected service life of 35 years".*

Total Project Budget
Provide the total project budget, even if it extends beyond the 5 years of this capital plan.

Asset Class
L - Land
S - Engineering Structure
B - Buildings
V - Vehicles

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.

Carryforward from 2021
Input the carryforward amount from the 2021 capital plan that is remaining to be spent Forecast this spending in 2022 to 2026.

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 = Economic benefit to the organization.

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 or asset material/type.
Condition Assessment = Assessment that identifies asset replacements based on asset condition.

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 prelimminary 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.

Service #: 2.670
Service Name: Regional Water Supply

Project List and Budget

Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2021	2022	2023	2024	2025	2026	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**	$166,000	B	WU	-	**$10,000**	**$20,000**	**$20,000**	-	-	$50,000
17-04	New	Water Supply Area - Fish Stream Assessments	Inventory and assessment of fish, fish habitat, and stream channel stability in priority streams in the GVWSA.	$325,000	L	WU	$18,000	$18,000	-	-	-	-	$18,000
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	$8,000	$8,000	**$50,000**	-	-	-	$58,000
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	$50,000	$50,000	-	-	-	-	$50,000
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
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	$24,000	$24,000	**$10,000**	**$10,000**	**$10,000**	**$10,000**	$64,000
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	$75,000	$145,000	$50,000	-	-	-	$195,000
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	$65,000	$160,000	$60,000	-	-	-	$220,000
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	$75,000	$75,000	-	-	-	-	$75,000
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	$10,000	**$110,000**	**$100,000**	**$100,000**	-	-	$310,000
22-03	Study	GVWSA Land Exchange/Acquisition	Land surveys, appraisals to support decisions regarding land exchange to increase catchment area or buffer water supply areas.	**$180,000**	L	WU	-	**$60,000**	**$60,000**	**$60,000**	-	-	$180,000
23-02	Renewal	GVWSA LiDAR Mapping	Detailed contour mapping of ground, vegetation and tree cover (3D scanning)	$120,000	L	WU	-	-	$120,000	-	-	-	$120,000
22-04	**Renewal**	**GVWSA Orthophotography**	**Annual contribution to capture of regional digital orthophotography for baseline mapping and monitoring.**	**$95,000**	**L**	**WU**	**-**	**$15,000**	**$15,000**	**$20,000**	**$20,000**	**$25,000**	**$95,000**
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**	**-**	**$50,000**	**-**	**-**	**-**	**-**	**$50,000**
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**	**-**	**-**	**-**	**$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**	**-**	**$50,000**	**-**	**-**	**-**	**-**	**$50,000**
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	$25,000	$225,000	$200,000	$200,000	$200,000	-	$825,000
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	$310,000	**$1,710,000**	-	-	-	-	$1,710,000
16-06	Renewal	Goldstream IWS Field Office[1]	Renewal of Water Quality field office, lab and equipment and supplies storage and Watershed Protection office, training space and equipment storage at Goldstream entrance, replacing longstanding temporary facilities.	**$1,500,000**	B	WU	$200,000	**$850,000**	**$500,000**	-	-	-	$1,350,000
16-06				**$5,000,000**	B	Other	-	**$2,500,000**	**$2,500,000**	-	-	-	$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.	$0	E	WU	$80,000	$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	$50,000	$150,000	$100,000	$100,000	$100,000	**$100,000**	$550,000
19-02	New	Whiskey Creek Bridge Replacement (Sooke WSA)	Replacement of the existing undersized bridge with a longer and higher concrete structure.	$300,000	S	WU	-	-	$300,000	-	-	-	$300,000
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.	$170,000	E	WU	$50,000	$50,000	-	-	-	-	$50,000
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.	**$560,000**	S	WU	-	**$400,000**	**$160,000**	-	-	-	$560,000
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
21-01	New	31N Bridge to Replace Undersized Culvert (Goldstream WSA)	Replacement of the existing undersized and failing culvert with a bridge structure.	$325,000	S	WU	$25,000	$25,000	-	-	-	-	$25,000

Service #: 2.670

Service Name: Regional Water Supply

Project List and Budget

Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2021	2022	2023	2024	2025	2026	5 - Year Total
21-26	New	Road Deactivation/Rehabilitation in the GVWSA	Deactivate or rehabilitate unneeded roads in the Sooke and Goldstream WSAs.	**$520,000**	L	WU	-	$100,000	$100,000	$100,000	$100,000	**$100,000**	$500,000
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	**$800,000**	S	WU	-	**$250,000**	**$300,000**	-	-	-	$550,000
21-28	New	GVWSA Land Acquisition Priorities	Acquisition of land parcel near Grant Lake and security installations.	$750,000	L	WU	$45,000	$45,000	-	-	-	-	$45,000
22-02	New	Muckpile Bridge Supply and Install (Deception)	Replacement of undersized culverts with bridge which will allow for fish and western toad migration.	$325,000	S	WU	-	-	-	-	**$325,000**	-	$325,000
23-04	Renewal	17S/Sooke Main Bridge Replacement	Undersized bridge replacement	$300,000	S	WU	-	-	-	-	-	**$300,000**	$300,000
24-01	Renewal	6M/Judge Creek Culvert Replacement (Sooke WSA)	Undersized culvert replacement	$200,000	S	WU	-	-	-	$200,000	-	-	$200,000
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**	**-**	**$40,000**	**-**	**-**	**-**	**-**	**$40,000**
22-12	**Renewal**	**Replace Zodiac for Sooke Lake Reservoir**	**The zodiac for nearshore work in Sooke Lake Reservoir is at end-of-life and requires replacement.**	**$10,000**	**E**	**WU**	**-**	**$10,000**	**-**	**-**	**-**	**-**	**$10,000**
22-13	**Renewal**	**Replace Storage Sheds with Containers**	**The existing storage shed does not provide proper storage for supplies and should be replaced with rodent proof sea containers**	**$50,000**	**E**	**WU**	**-**	**$20,000**	**-**	**-**	**-**	**-**	**$20,000**
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**	**Second Wildfire Camera for Leech WSA**	**A secondary wildfire camera to monitor for heat and smoke signatures in the Leech WSA during fire season.**	**$50,000**	**E**	**WU**	**-**	**-**	**$50,000**	**-**	**-**	**-**	**$50,000**
WaterShed Protection Sub-Total				**$22,437,000**			**$1,110,000**	**$7,440,000**	**$4,855,000**	**$810,000**	**$755,000**	**$735,000**	**$14,595,000**
INFRASTRUCTURE ENGINEERING AND OPERATIONS													
Planning													
16-10	New	Post Disaster Emergency Water Supply	Identify and procure emergency systems for post disaster preparedness.	$2,050,000	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 Pres	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	$100,000	$100,000	-	-	-	-	$100,000
20-10	Study	Condition & Vulnerability Assessment	Conduct a condition assessment of critical supply infrastructure and assess its possibility of risk.	$200,000	S	WU	$200,000	$200,000	-	-	-	-	$200,000
20-11	Study	Develop Master Plan	Develop a long term strategic plan to anticipate water demand, water treatment, and future siting of facilities.	$500,000	S	WU	$100,000	$100,000	-	-	-	-	$100,000
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
Capital													$0
18-07	New	Replacement of UV System	Replacement of the UV system at the Goldstream Water Treatment Plant	$5,400,000	E	WU	$100,000	$3,100,000	$1,800,000	-	-	-	$4,900,000
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	$100,000	$300,000	$200,000	$200,000	$150,000	-	$850,000
18-15	Renewal	Corrosion Protection Program	Study deficiencies in the current material protection and implement recommendations.	$1,150,000	S	WU	$50,000	$200,000	$150,000	$150,000	$150,000	$150,000	$800,000
18-18	Replacement	Main No.3 Segment Replacement	Replacement of segments of Main No. 3 based upon previous studies.	$15,600,000	S	WU	$150,000	$600,000	$4,900,000	$4,900,000	$4,900,000	-	$15,300,000
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.	**$600,000**	S	WU	$200,000	$200,000	**$300,000**	-	-	-	$500,000
20-16	Replacement	Cecelia Meter Replacement	Replacement of the Cecelia billing meter as well as its enclosure.	$1,000,000	S	WU	-	$450,000	$450,000	-	-	-	$900,000
20-17	Replacement	Decommission Smith Hill Site	Plan and decommission the abandoned Smith Hill reservoir site.	$800,000	S	WU	-	$150,000	-	$500,000	-	-	$650,000
20-32	New	pH Adjustment Facility	Design and construct a pH adjustment facility based upon the results of the pH and corrosion study.	$2,500,000	S	WU	-	$100,000	$2,400,000	-	-	-	$2,500,000
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.	$275,000	E	WU	-	$200,000	-	-	-	-	$200,000
21-07	Replacement	Goldstream Water Treatment Plant Communications Upgrade	Increase reliability and resilience of data and voice communications between the UV Plant, Sodium Hypochlorite Building, Ammonia Building.	$250,000	S	WU	$50,000	**$50,000**	-	-	-	-	$50,000
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.	$650,000	E	WU	$50,000	**$500,000**	-	-	-	-	$500,000
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	$1,500,000	$1,500,000	$6,300,000	$11,400,000	$13,500,000	$900,000	$33,600,000
21-12	New	SRRDF Upgrade	Increased water flows in the Sooke region have resulted in an additional sodium hypochlorite dosing pump and automation for summer flows.	**$425,000**	E	WU	-	**$350,000**	-	-	-	-	$350,000
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
22-15	**New**	**Microwave Radio Upgrades**	**To provide a high bandwidth communications backbone to the RWS system, a microwave communications system will be installed.**	**$300,000**	**S**	**WU**	-	**$300,000**	-	-	-	-	$300,000
22-16	**Renewal**	**Goldstream WTP Drainage Improvements**	**Construct drainage improvements for the Goldstream Water Treatment Plant and assess**	**$200,000**	**S**	**WU**	-	**$200,000**	-	-	-	-	$200,000
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**	-	**$200,000**	-	-	-	-	$200,000
Infrastructure Engineering and Operations Sub-Total				**$69,900,000**			**$3,150,000**	**$9,600,000**	**$16,700,000**	**$17,450,000**	**$18,900,000**	**$1,250,000**	**$63,900,000**
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	$75,000	-	-	$425,000
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	$2,000,000	-	-	-	-	$2,000,000
17-25	Renewal	Implications from Sooke Lake Dam Safety Review	Conduct dam improvments at the Sookel Lake Dam that resulted from the Dam Safety Review and routine inspections (refer to the Dam Safety Database)	$1,210,000	S	WU	$500,000	$500,000	-	-	-	-	$500,000
18-19	New	Sooke Lake Dam - Instrumentation System Improvements	Complete dam performance instrumentation system/surveillance improvements for the Sooke Lake Dam.	$1,300,000	S	WU	$500,000	$600,000	$100,000	$100,000	-	-	$800,000
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	$500,000	-	-	-	-	$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.	$1,100,000	E	WU	$500,000	$1,000,000	-	-	-	-	$1,000,000
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	$500,000	-	**$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	$100,000	$150,000	$50,000	$50,000	-	-	$250,000

Service #: 2.670

Service Name: Regional Water Supply

Project List and Budget

Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2021	2022	2023	2024	2025	2026	5 - Year Total
20-19	Replacement	Goldstream System High Level Outlet Valve Replacements	The Goldstream and Butchart high level outlet valves have been identified as requiring replacement.	$200,000	S	WU	$50,000	$150,000	-	-	-	-	$150,000
21-03	New	Deception Dam - Dam Safety Review 2021 & Improvements	Conduct a Dam Safety Review and improvements for the Deception Dam.	$300,000	S	WU	$100,000	$200,000	-	-	-	-	$200,000
21-04	New	Saddle Dam - Dam Safety Review 2021 & Improvements	Conduct a Dam Safety Review and improvements for the Saddle Dam.	$200,000	S	WU	$100,000	$100,000	-	-	-	-	$100,000
21-21	Replacement	Goldstream Dams - 4 Low Level Gate Improvements	Logistics planning in 2021, installation in 2022	$150,000	S	WU	$100,000	$100,000	-	-	-	-	$100,000
21-22	Study	Charters Dam - Dam Safety Review 2021	Legislated obligation to conduct Dam Safety Review.	$250,000	S	WU	$50,000	$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	$300,000	-	-	-	$450,000
23-01	New	Sooke Lake Dam Update Seismic Assessment	Conduct a seismic assessment of the Sooke Lake Dam as per the previous Dam Safety Reviews.	$150,000	E	WU	-	-	**$150,000**	-	-	-	$150,000
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 & Addressing Implications	Conduct a Dam Safety Review (recommended 10 year review cycle)	$800,000	S	WU	-	-	**$200,000**	**$300,000**	**$300,000**	-	$800,000
25-01	Study	Goldstream Dam - Dam Safety Review 2025 & Addressing Implications	Conduct a Dam Safety Review in 2023 (recommended 10 year review cycle)	**$350,000**	S	WU	-	-	-	-	$150,000	**$200,000**	$350,000
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				**$13,335,000**			**$5,200,000**	**$5,875,000**	**$1,275,000**	**$1,475,000**	**$600,000**	**$200,000**	**$9,425,000**
WATER QUALITY													
20-04	New	Sooke Lake HyDy Model Development	Critical data collection, model building+calibration, model utilization for 3 different scenarios	$340,000	E	WU	$80,000	$260,000	$30,000	$30,000	-	-	$320,000
21-13	New	Flowcam Imaging System	Utilize semi-automated algal analysis to meet increased demands without increasing FTEs	$150,000	E	WU	-	$10,000	-	-	-	-	$10,000
21-29	Renewal	Microbiological plate pourer	Automation of manual process to increase capacity/worker safety	$30,000	E	WU	-	-	-	-	-	-	$0
22-05	New	WQ Lab Capital Improvements	Building improvements in the lab	$40,000	B	WU	-	$40,000	-	-	-	-	$40,000
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	-	$100,000	-	-	-	-	$100,000
22-07	Study	Bulk-Water Connection Backflow Protection Study	Investigate all bulk-water connections to CRD or municipal systems and identify the need for backflow protection	$50,000	S	WU	-	$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
22-19	New	Microbiological Media Preparator	Microbiological media preparator for automation of manual/hazardous tasks	$45,000	E	WU	-	$45,000	-	-	-	-	$45,000
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
Water Quality Sub-Total				**$865,000**			**$80,000**	**$565,000**	**$80,000**	**$30,000**	**$0**	**$0**	**$675,000**
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**	**$150,000**	**$100,000**	**$100,000**	$650,000
17-29	Replacement	Water Supply Area Equipment Replacement	Hydrometeorological, fireweather and wildfire suppression equipment replacement.	$425,000	E	WU	-	**$85,000**	**$85,000**	**$85,000**	**$85,000**	**$85,000**	$425,000
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 itesm 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	$100,000	E	WU	-	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000
Annual Provisional Sub-Total				**$8,375,000**			**$0**	**$1,710,000**	**$1,710,000**	**$1,710,000**	**$1,660,000**	**$1,660,000**	**$8,450,000**
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.	$2,495,000	V	ERF	$291,000	$1,205,250	$406,000	$290,000	$450,000	$200,000	$2,551,250
20-22	New	Vehicle for the Dam Safety Program	New Transit Van	$80,000	V	WU	$35,000	**$80,000**	-	-	-	-	$80,000
20-23	New	Vehicle for the CSE Support Program	New Transit Van	$62,000	V	WU	$45,000	**$80,000**	-	-	-	-	$80,000
21-30	New	Vehicle for Warehouse Operations	New pick up	$62,000	V	WU	$35,000	**$62,000**	-	-	-	-	$62,000
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
22-18					**E**	**Grant**	**-**	**$40,000**	-	-	-	-	$40,000
Customer and Technical Services Sub-Total				**$2,779,000**			**$406,000**	**$1,507,250**	**$406,000**	**$290,000**	**$450,000**	**$200,000**	**$2,853,250**
			GRAND TOTAL	**$117,691,000**			**$9,946,000**	**$26,697,250**	**$25,026,000**	**$21,765,000**	**$22,365,000**	**$4,045,000**	**$99,898,250**

CAPITAL REGIONAL DISTRICT
5 YEAR CAPITAL PLAN
2022 - 2026

Project Number
Project number format is "yy-##"
"yy" is the last two digits of the year the project is planned to start.
"##" is a numberical value. For example, 22-01 is a project planned to start in 2022.

For projects in previous capital plans, use the same project numbers previously assigned.

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

Capital Project Title
Input title of project. For example "Asset Name - Roof Replacement", "Main Water Pipe Replacement".

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 is built current energy standards, designed to minimize maintenance and have an expected service life of 35 years".*

Total Project Budget
Provide the total project budget, even if it extends beyond the 5 years of this capital plan.

Asset Class
L - Land
S - Engineering Structure
B - Buildings
V - Vehicles

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.

Carryforward from 2021
Input the carryforward amount frin tge 2021 capital plan that is remaining to be spent Forecast this spending in 2022 to 2026.

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 = Economic benefit to the organization.

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 or asset material/type.
Condition Assessment = Assessment that identifies asset replacements based on asset condition.

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 prelimminary 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.

Service #: 2.670/2.680

Service Name: Regional Water Supply & JDF Water Distribution Combo

Project List and Budget

Project Number	Capital Expenditure Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carryforward from 2021	2022	2023	2024	2025	2026	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	$600,000	$1,250,000	$0	$0	$0	$0	$1,250,000
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	$200,000	**$550,000**	$0	$0	$0	$0	$550,000
Sub-Total System Replacement and Upgrades That Benefit Regional Water Supply and Juan de Fuca Distribution				$2,630,000			$800,000	$1,880,000	$80,000	$80,000	$80,000	$80,000	$2,200,000
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	$0	$50,000	$20,000	$20,000	$20,000	$20,000	$130,000
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	$0	$320,000
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
Sub-Total for Annual Provisional Capital Items				$1,650,000			$0	$360,000	$330,000	$330,000	$330,000	$250,000	$1,600,000
			GRAND TOTAL	**$4,280,000**			**$800,000**	**$2,240,000**	**$410,000**	**$410,000**	**$410,000**	**$330,000**	**$3,800,000**

Service:	2.670	Regional Water Supply

Project Number	Capital Project Title	Capital Project Description
17-01	Historic Goldstream Powerhouse Building	Repairs of historic Goldstream Powerhouse building and work toward making the site accessible to the public

Project Rationale Located near the Japan Gulch Treatment Plant and the Great 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 is being used to replace the roof membrane/envelope in 2021 ($76,000). Funds are requested in 2022, 2023 and 2024 to plan and then implement security and basic public interpretation signage working toward a goal to make the site available to the public from the nearby Sooke Hills Wilderness Trail. Grant funding, partnership and volunteering opportunities to conserve the building and share its history will continue to be sought.**

Project Number	Capital Project Title	Capital Project Description
17-04	Water Supply Area - Fish Stream Assessments	Inventory and assessment of fish, fish habitat, and stream channel stability in priority streams in the GVWSA.

Project Rationale Presence or absence of fish as well as fish habitat information has only been collected in the Water Supply Areas on an as-needed basis related to specific road projects. In order to adequately plan and manage for fish habitat and water quality a systematic inventory and assessment of fish habitat, stream channel stability, and the hydrological condition of stream corridors will be conducted over three field seasons. The funding for 2019 is insufficient to conduct fish stream assessments in the entire Leech Water Supply Area. An additional $100,000 in 2020 will allow for fish stream surveys to be carried out in the western and northern portions of the Leech which cannot be completed in 2019.

Project Number	Capital Project Title	Capital Project Description
18-10	Species-at-Risk Wildlife Habitat	Assessments (office and field) and planning for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA.

Project Rationale 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).**

Service:	2.670	Regional Water Supply

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	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).				

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	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 2021 to 2022.				

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				

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.				

Service:	2.670	Regional Water Supply

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.				

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.				

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	22-03	**Capital Project Title**	GVWSA Land Exchange/Acquisition	**Capital Project Description**	Land surveys, appraisals to support decisions regarding land exchange to increase catchment area or buffer water supply areas.
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. Funds would be used to undertake appraisals, legal surveys, and legal fees for work to develop agreements to purchase or exchange lands.				

Service:	2.670	Regional Water Supply

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.				

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 mosiac 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. Annual funding will provide an onging contribution to this overall project.**				

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.**				

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 an educational video 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.**				

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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	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.**				

Project Number	16-01	**Capital Project Title**	Replace Gatehouse at Goldstream Entrance	**Capital Project Description**	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.
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**	0	**Capital Project Description**	Renewal of Water Quality field office, lab and equipment and supplies storage and Watershed Protection office, training space and equipment storage at Goldstream entrance, replacing
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.**				

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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.				

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.				

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.				

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Project Number	Capital Project Title	Capital Project Description
20-01	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.

Project Rationale The existing culvert at Mile 1 on Kapoor Main is undersized, has evidence of buried organics in the fill material and has oversteepend, 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.**

Project Number	Capital Project Title	Capital Project Description
20-29	GVWSA Gravel Crushing	Production of gravel at existing quarries in Sooke and Goldstream WSAs.

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.**

Project Number	Capital Project Title	Capital Project Description
21-01	31N Bridge to Replace Undersized Culvert (Goldstream WSA)	Replacement of the existing undersized and failing culvert with a bridge structure.

Project Rationale The undersized and failing culvert on the 31N Road in the Goldstream Water Supply Area requires replacement with a bridge structure in 2021. Funding has been increased to reflect an estimated cost for bridge supply and install of $325,000.

Project Number	Capital Project Title	Capital Project Description
21-26	Road Deactivation/Rehabilitation in the GVWSA	Deactivate or rehabilitate unneeded roads in the Sooke and Goldstream WSAs.

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.

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Project Number	Capital Project Title	Capital Project Description
21-27	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

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 tresspass 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.

Project Number	Capital Project Title	Capital Project Description
21-28	GVWSA Land Acquisition Priorities	Acquisition of land parcel near Grant Lake and security installations.

Project Rationale Funding to support acquisition of priority GVWSA catchment and buffer lands near Grant Lake; and integrate the lands into the GVWSA through signage, fencing and gates or barriers.

Project Number	Capital Project Title	Capital Project Description
22-02	Muckpile Bridge Supply and Install (Deception)	Replacement of undersized culverts with bridge which will allow for fish and western toad migration.

Project Rationale Replacement of undersized culverts with a concrete deck L100 bridge which will alo improve fish passage and western toad migration.

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

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Project Number	24-01	**Capital Project Title**	6M/Judge Creek Culvert Replacement (Sooke WSA)	**Capital Project Description**	Undersized culvert replacement
Project Rationale	This culvert is very undersized on a slow moving section of creek, which seasonally can be overtopped and unpassable for vehicles. This culvert with be replaced with a larger, fish-friendly structure.				

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.**				

Project Number	22-12	**Capital Project Title**	Replace Zodiac for Sooke Lake Reservoir	**Capital Project Description**	The zodiac for nearshore work in Sooke Lake Reservoir is at end-of-life and requires replacement.
Project Rationale	**The current Zodiac (rigid inflatible), is near end of life and is not holding air. It is used for near shore work on the primary reservior, and spill response or rescue in the event of a boat incident on Sooke Lake Reservoir. The existing trailer and engine are in acceptable condition, so only a new hull is required.**				

Project Number	22-13	**Capital Project Title**	Replace Storage Sheds with Containers	**Capital Project Description**	The existing storage shed does not provide proper storage for supplies and should be replaced with rodent proof sea containers
Project Rationale	**The existing storage facility (sheds) in the Pipeyard used for Infrastructure Operations and Watershed Protection equipment and supplies is enclosed but not sealed from the elements or rodents with a gravel bottom; and is nearing end of life. Due to health and safety concerns, the sheds are to be replaced with basic seacan storage containers that can be sealed and readily moved as needs change.**				

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Project Number	Capital Project Title	Capital Project Description
23-10	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.

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	Capital Project Title	Capital Project Description
23-11	Second Wildfire Camera for Leech WSA	A secondary wildfire camera to monitor for heat and smoke signatures in the Leech WSA during fire season.

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.

Project Number	Capital Project Title	Capital Project Description
16-10	Post Disaster Emergency Water Supply	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 start implementing these additional works.

Project Number	Capital Project Title	Capital Project Description
17-13	Asset Management Plan	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.Additional funds are required to complete additional investigations highlighted in the 2017 study.

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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.				

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	20-11	**Capital Project Title**	Develop Master Plan	**Capital Project Description**	Develop a long term strategic plan to anticipate water demand, water treatment, and future siting of facilities.
Project Rationale	The RWSC is providing water to an increasing population in the CRD. Due to the size and complexity of the supply system, improvements to increase capacity has to be identified and planned out well in advance of the need for the additional water. Funding is required to assess water demand vs available water supply, assess water treatment and future siting of facilities that may be required.				

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Project Number	Capital Project Title	Capital Project Description
21-05	Level of Service Agreement	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	Capital Project Title	Capital Project Description
18-07	Replacement of UV System	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	Capital Project Title	Capital Project Description
18-08	Bulk Supply Meter Replacement Program	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.

Project Number	Capital Project Title	Capital Project Description
18-15	Corrosion Protection Program	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.

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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 be undertaken in 2018 with detailed design and construction commencing in 2019 to 2022. 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.				

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.				

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Project Number	20-17	**Capital Project Title**	Decommission Smith Hill Site	**Capital Project Description**	Plan and decommission the abandoned 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	20-32	**Capital Project Title**	pH Adjustment Facility	**Capital Project Description**	Design and construct a pH adjustment facility based upon the results of the pH and corrosion study.
Project Rationale	From the 2019 Capital Project, pH and Corrosion Study, a new facility to adjust pH in the transmission system will be designed and constructed.				

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	21-07	**Capital Project Title**	Goldstream Water Treatment Plant Communications Upgrade	**Capital Project Description**	Increase reliability and resilience of data and voice communications between the UV Plant, Sodium Hypochlorite Building, Ammonia Building.
Project Rationale	The communications systems between the UV Plant, Sodium Hypochlorite Building and Ammonia Building operate on separate systems, requiring additional time and processes to access one from the other. Funds are required to optimize the communications system to increase reliability and resilience of data and voice communications between the facilities.				

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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.				

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.				

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Project Number	21-12	**Capital Project Title**	SRRDF Upgrade	**Capital Project Description**	Increased water flows in the Sooke region have resulted in an additional sodium hypochlorite dosing pump and automation for summer flows.
Project Rationale	Due to increased water flows in the Sooke region, an additional sodium hypochlorite dosing pump and automation is required. Funds are required to carry out the upgrades.				

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.				

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	Multiple facilities throughout the CRD RWS system require additional bandwidth to allow for proper monitoring and control. This project will enable the initial design and preliminary installation of a high bandwidth microwave backbone that will be able to be leveraged by multiple CRD operational groups. The installation of this backbone will be coordinated with the other IWS service areas.				

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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 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	16-16	**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.				

Project Number	17-25	**Capital Project Title**	Implications from Sooke Lake Dam Safety Review	**Capital Project Description**	Conduct dam improvments at the Sookel 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.				

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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 proecjt was completed in 2017 by an engineering consutlant 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.				

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 has been retired from drinking water service with no other interested owners. Funds are required to plan and implement decommissioning of the dams.				

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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.				

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 anticipcated 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.				

Service:	2.670	Regional Water Supply

Project Number	Capital Project Title	Capital Project Description
21-04	Saddle Dam - Dam Safety Review 2021 & Improvements	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 and "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	Capital Project Title	Capital Project Description
21-21	Goldstream Dams - 4 Low Level Gate Improvements	Logistics planning in 2021, installation in 2022

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

Project Number	Capital Project Title	Capital Project Description
21-22	Charters Dam - Dam Safety Review 2021	Legislated obligation to conduct Dam Safety Review.

Project Rationale Charters Dam has a consequence classification of "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 and "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. A dam decommissioning study is in progress and the DSR will only proceed if needed, as determined by the Dam Safety officer.

Project Number	Capital Project Title	Capital Project Description
22-08	Deception Dam Surveillance Improvements	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.

Service:	2.670	Regional Water Supply

Project Number	23-01	**Capital Project Title**	Sooke Lake Dam Update Seismic Assessment	**Capital Project Description**	Conduct a seismic assessment of the Sooke Lake Dam as per the previous Dam Safety Reviews.
Project Rationale	The Sooke Lake Dam requires periodic seismic assessment updates. Funds are required to retain a consultant to conduct an update to the Sooke Lake Dam Seismic Assessment.				

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.				

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 & Addressing Implications	**Capital Project Description**	Conduct a Dam Safety Review (recommended 10 year review cycle)
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 and "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.				

Service:	2.670	Regional Water Supply

Project Number	25-01	**Capital Project Title**	Goldstream Dam - Dam Safety Review 2025 & Addressing Implications	**Capital Project Description**	Conduct a Dam Safety Review in 2023 (recommended 10 year review cycle)
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 and "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.				

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	21-13	**Capital Project Title**	Flowcam Imaging System	**Capital Project Description**	Utilize semi-automated algal analysis to meet increased demands without increasing FTEs
Project Rationale	Demand for algal monitoring of the watershed areas has increased due to the monitoring of the Leech Watershed Area and overall increased monitring due to the potential effects of climate change on the water supply for Greater Victoria. The Flowcam imaging system is a semiautomated flow cytometer imaging system that can increase sample analysis capacity substantially to meet the demand without increasing FTEs in an expert role. Water Quality also analyzes algal samples for CRD-operated local service area drinking water sources and recovers costs through internal charges back to RWS.				

Service:	2.670	Regional Water Supply

Project Number	21-29	**Capital Project Title**	Microbiological plate pourer	**Capital Project Description**	Automation of manual process to increase capacity/worker safety
Project Rationale	Currently microbiological media is heated to melting on a hotplate and manually poured into Petri dishes, and sample workload has increased such that staff spend a significant amount of time on this potentially hazardous activity. This piece of equipment automates the process to eliminate the risk of burn injuries from handling hot, sterilized media in glassware.				

Project Number	22-05	**Capital Project Title**	WQ Lab Capital Improvements	**Capital Project Description**	Building improvements in the lab
Project Rationale	Replacement of floor covering and wooden cabinetry original to the building due to deterioration/ wear and tear.				

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	22-07	**Capital Project Title**	Bulk-Water Connection Backflow Protection Study	**Capital Project Description**	Investigate all bulk-water connections to CRD or municipal systems and identify the need for backflow protection
Project Rationale	While the CRD has a new policy requiring backflow considerations for the design of new connections to CRD supply mains, there are a number of existing connections that are unprotected or that are unknown if protected. Also, there are numerous bulk-water connections to municipal mains (Stratas, First Nation lands, federal lands) that may be unprotected. This study is to create an inventory of all bulk-water connections to public water systems in the GVDWS and to assess the risk of backflow.				

Service:	2.670	Regional Water Supply

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	22-19	**Capital Project Title**	Microbiological Media Preparator	**Capital Project Description**	Microbiological media preparator for automation of manual/hazardous tasks
Project Rationale	Staff spend many manual hours preparing and pouring molten micriobiological media for use in water and waste water testing. In 2021, a plate pourer was added for safety reasons (to minimize staff exposure to handling hot liquids) and the preparator will provide further automation and safety benefits, greatly reducing potential for staff injury due to burns or musculoskeletal injuries.				

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 seperate 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).				

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 itesm in the dam safety database/risk registry
Project Rationale	Dam Satey 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.				

Service:	2.670	Regional Water Supply

Project Number	Capital Project Title	Capital Project Description
19-22	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.

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

Project Number	Capital Project Title	Capital Project Description
21-15	Corrosion Protection	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.

Service:	2.670	Regional Water Supply

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	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.				

Service:	2.670	Regional Water Supply

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.				

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 *The budget includes the following funds to upgrade and renew the buildings at 479 Island Highway:*
- *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 *Service Life and projected replacement:*
- *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 the present equipment.*

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 *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****.*

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 *Funds will be used for the replacement and upgrading of office equipment and furniture, as required.*

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

Project Number	Capital Project Title	Capital Project Description
17-04	Computer Upgrades	Annual upgrade and replacement program for computers, copiers, printers, network equipment as required.

Project Rationale

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.

Capital Budget
Network Switch Maintenance $10,000
Additional Wireless Access Points and Maintenance $15,000
Photocopier Replacement $20,000
Additional Data Storage $15,000
Replacement Computers $75,000
Equipment Maintenance (contingency) $23,000
Replace Access Control System - Gates/ Video Cameras $12,000
Total Capital $170,000

Project Number	Capital Project Title	Capital Project Description
17-05	Development of the Maintenance Management Systems	Develop maintenance management system.

Project Rationale

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.

Project Number	Capital Project Title	Capital Project Description
17-06	Small Equipment & Tool Replacement (Water Operations)	Replacement of tools and small equipment for Water Operations as required.

Project Rationale

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.

Project Number	Capital Project Title	Capital Project Description
17-07	Small Equipment & Tool Replacement (Corporate Fleet)	Replacement of tools and small equipment for Fleet as required.

Project Rationale

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.

2.670 Regional Water Supply
Asset/ Reserve Schedule
2022 - 2026 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.

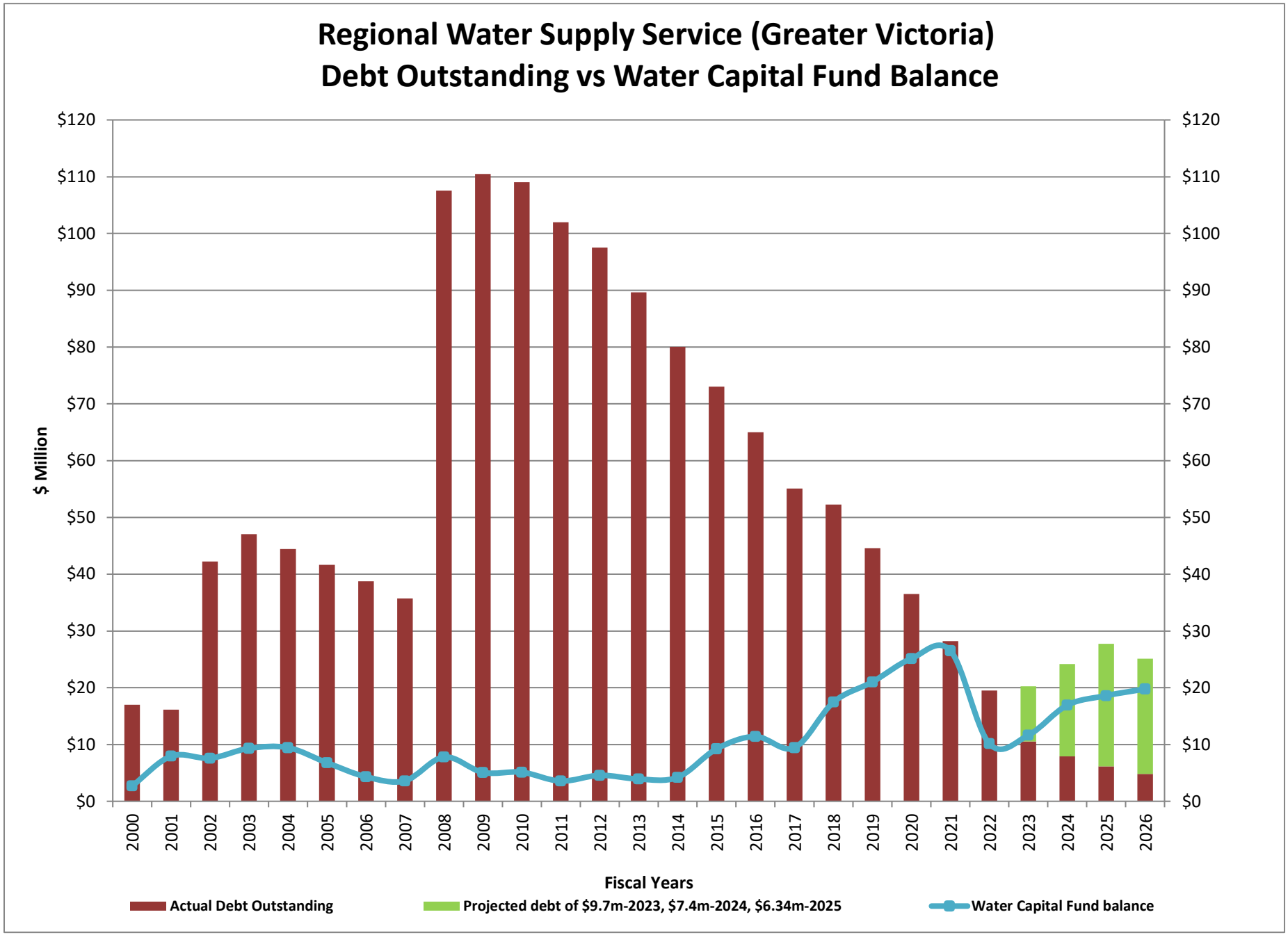
Equipment Replacement Reserve Schedule

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

Fund: 1022 Fund Center: 101454	**Actual**	**Estimate**	**Budget**				
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
Beginning Balance	2,031,817	2,364,344	2,700,884	1,990,603	1,965,968	2,046,342	1,997,253
Equipment purchases (Based on Capital Plan)	(27,153)	(19,000)	(1,205,250)	(406,000)	(290,000)	(450,000)	(200,000)
Transfer from Operating Budget	299,294	297,540	314,181	320,465	326,874	333,411	340,080
Proceeds on disposals	40,475	38,000	180,788	60,900	43,500	67,500	30,000
Interest Income*	19,911	20,000					
Ending Balance $	**2,364,344**	**2,700,884**	**1,990,603**	**1,965,968**	**2,046,342**	**1,997,253**	**2,167,333**

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
$ Million
$120
$110
$100
$90
$80
$70
$60
$50
$40
$30
$20
$10
$0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
Fiscal Years
Actual Debt Outstanding
Projected debt of $9.7m-2023, $7.4m-2024, $6.34m-2025
Water Capital Fund balance

APPENDIX C

REGIONAL WATER SUPPLY COMMISSION
Agricultural Water Rate Funding Comparisons 2011 - 2020

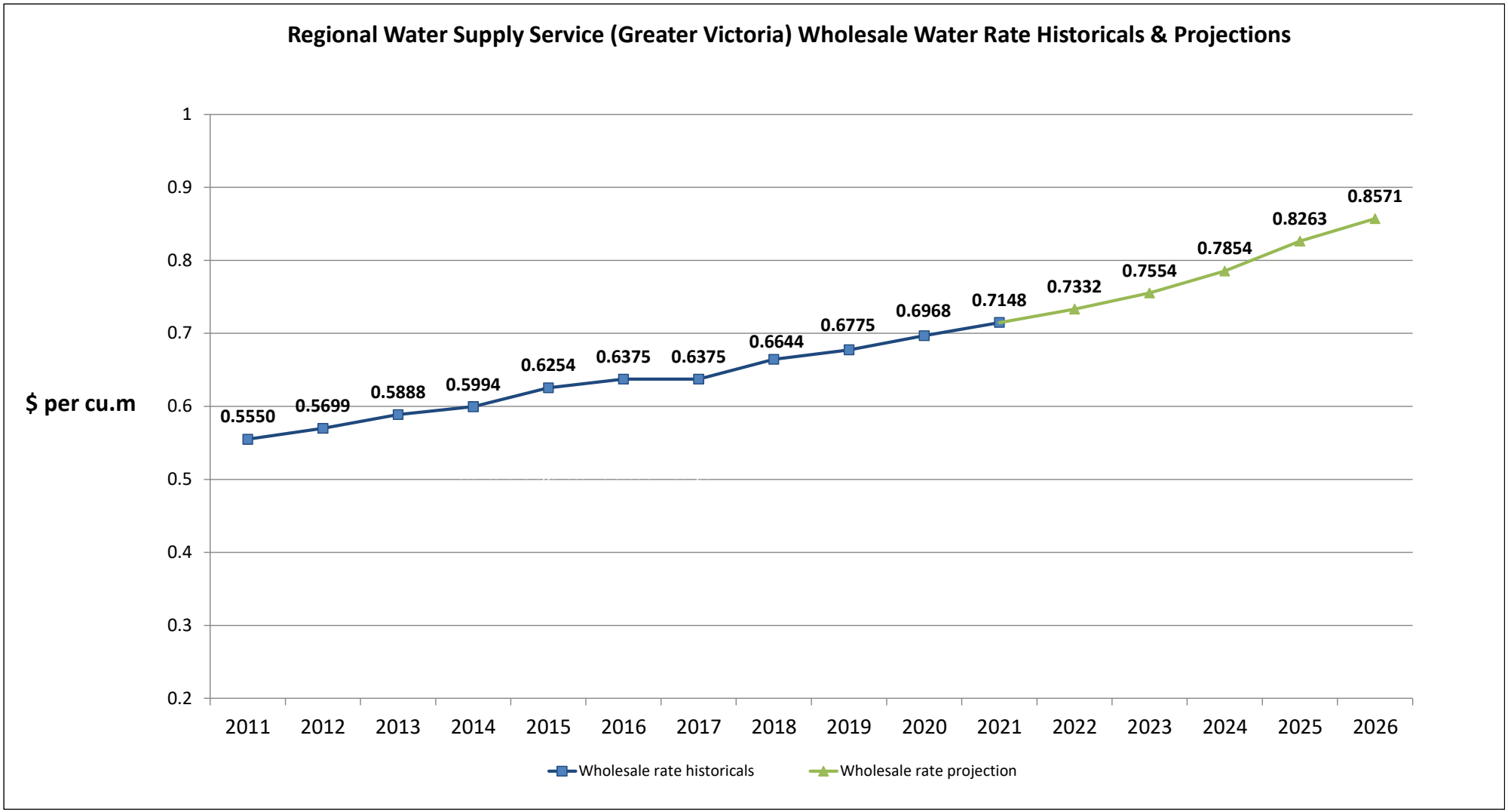
		No. of AR Accounts	No. of AG Accounts	AR Volume m3	AG Volume m3	Avg AR Volume m3 (Vol/Accts)	Avg AG Volume m3	Agri Rate Consumption Costs	Agri Fixed Charge Costs	Total Agri Subsidy Paid out (Cons + Fixed)	Avg Agri Cost $ (Paid/Accts)	%age of Total Paid out	Rate Differential: Municipal Rate m3 A	Agri Rate m3 B	Muni-CRD Diff m3 A - B
Western Communities & Sooke *															
	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															
	2020	278	49	375,646	233,214	1,351	4,759	$ 873,579	$ 6,768	$ 880,347	$ 2,692	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 **															
	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															
	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															
	2020	532	133	515,927	537,228	970	4,039	$ 1,553,594	$ 17,635	$ 1,571,229	$ 2,363	100%			
	2019	524	127	553,766	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	557	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.

APPENDIX D


Regional Water Supply Service (Greater Victoria) Wholesale Water Rate Historicals & Projections
$ per cu.m
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.5550
0.5699
0.5888
0.5994
0.6254
0.6375
0.6375
0.6644
0.6775
0.6968
0.7148
0.7332
0.7554
0.7854
0.8263
0.8571
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
Wholesale rate historicals
Wholesale rate projection