Capital Regional District
625 Fisgard St.,
Victoria, BC V8W 1R7

Notice of Meeting and Meeting Agenda
Regional Water Supply Commission

Wednesday, October 16, 2019 | **11:30 AM** | **6th Floor Boardroom**

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

1. TERRITORIAL ACKNOWLEDGEMENT

2. APPROVAL OF THE AGENDA

3. ADOPTION OF MINUTES

3.1. 19-848 Adoption of the Minutes

Recommendation: That the minutes of the September 18, 2019 Regional Water Supply Commission meeting be adopted as circulated.

Attachments: Draft Minutes September 18, 2019

4. REPORT OF THE CHAIR

5. PRESENTATIONS/DELEGATIONS

6. WATER ADVISORY COMMITTEE

6.1. Update from Water Advisory Committee

6.2. **19-855** Water Advisory Committee Recommendation Regarding: Guidelines for Canadian Drinking Water Quality - Recent Change in Lead Guideline and Capital Regional District Actions

Recommendation: That the Water Advisory Committee recommends to the Regional Water Supply Commission, that staff be directed to:

1. Include lead testing in the distribution system water samples being collected during the current pH and Corrosion Study; and,
2. Facilitate a meeting with Island Health, City of Victoria and District of Oak Bay staff to discuss potential outreach to municipal water customers regarding lead and copper water quality results at the municipal water distribution system bulk water connection points, which are unique among other connection points across the Supply System.

7. GENERAL MANAGER'S REPORT

8. COMMISSION BUSINESS

8.1. 19-846 Regional Water Supply Service - 2020 Operating and Capital Budget

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

1. Approve the 2020 Capital Budget and the Five Year Capital Plan;
2. Approve the 2020 Operating Budget;
3. Approve the 2020 wholesale water rate of $0.6968 per cubic metre;
4. Approve the 2020 agricultural water rate of $0.2105 per cubic metre;
5. Direct staff to balance the 2019 actual revenue and expense on the transfer to the water capital fund; and
6. Direct staff to amend the Water Rates Bylaw accordingly.

Attachments:
- Staff Report: 2020 Operating and Capital Budget
- Appendix A: 2020 Regional Water Supply Service Budget
- Appendix B: Long Term Debt Obligations Summary
- Appendix C: Agricultural Water Volumes and Rate Payments for 2011 - 2018
- Appendix D: Wholesale Water Rate History and Projection

8.2. 19-847 Greater Victoria Water Supply Area Mining Access Request

Recommendation: That the Regional Water Supply Commission authorize access and special use to:

a. the mining tenure holder; and,
b. accompanying agents and free miners whose status can be confirmed, and that meet CRD insurance requirements;

for the valid mining tenures held, subject to the conditions of the Access Agreement.

Attachments: Staff Report: GVWSA Mining Access Request

8.3. 19-670 Summary of the 2019 Public and School Tours of the Greater Victoria Water Supply Area and Water Supply Facilities

Recommendation: That the Regional Water Supply Commission receive this report for information.

Attachments:
- Staff Report: Summary of the 2019 Public & School Tours of the GVWSA
- Appendix A: 2019 Tour Brochure

consideration postponed from the September 18, 2019 meeting

8.4. 19-844 Summary of Recommendations from Other Water Commissions

Recommendation: That the Regional Water Supply Commission receive the Summary of Recommendations from Other Water Commissions for information.

Attachments: Summary Of Recommendations from Other Water Commissions

8.5. 19-845 Water Watch Report

Recommendation: That the Regional Water Supply Commission receive the October 6, 2019 water Watch report for information.

Attachments: Weekly Water Watch

9. CORRESPONDENCE

9.1. 19-858 Peninsula & Area Agricultural Commission, May 13, 2019

Recommendation: That the Regional Water Supply Commission receive the correspondence for information.

Attachments: Peninsula & Area Agricultural Commission, May 13, 2019

10. MOTION WITH NOTICE

10.1. 19-686 Regional Water Supply Commission Support of the Provincial Water Conservation Measures; N.Chambers

Recommendation: That the Regional Water Supply Commission requests that the Chair write, on behalf of the Commission, to the provincial government in support of provincial water conservation measures and climate action measures that align with protection of the Regional Water Supply.

consideration postponed from the September 18, 2019 meeting

11. NEW BUSINESS

12. ADJOURNMENT

Next Meeting: November 20, 2019

To ensure quorum, please contact Denise Dionne at ddionne@crd.bc.ca or 250.360.3087 if you or your alternate cannot attend.

Capital Regional District
625 Fisgard St.,
Victoria, BC V8W 1R7

Meeting Minutes

Regional Water Supply Commission

Wednesday, September 18, 2019 **11:25 AM** **6th Floor Boardroom**

PRESENT: R. Mersereau (Chair); G. Baird (Vice Chair); N. Chambers; S. Potts for L. Collins; Z. de Vries; S. Duncan; C. Graham; K. Harper; M. Hicks; B. Isitt; K. Kahakauwila; G. Logan; J. Loveday; T. Morrison; J. Rogers; T. St. Pierre (Alternate); C. Stock; L. Szpak; N. Taylor; R. Wade; E. Wood Zhelka; G. Young

REGRETS: C. Stock

STAFF: R. Lapham, CAO; T. Robbins, General Manager; A. Constabel, Senior Manager, Watershed Protection; I. Jesney, Senior Manager, Infrastructure Engineering; M. McCrank, Senior Manager, Infrastructure Operations, G. Harris, Senior Manager, Environmental Protection; T. Urquhart, Communications Coordinator; D. Dionne, Administrative Coordinator

ALSO IN ATTENDANCE: Dr. R. Stanwick and Dr. T. Fife, Island Health

1. Territorial Acknowledgement

2. Approval of the Agenda

MOVED by Commissioner Graham, **SECONDED** by Commissioner Morrison,
That the September 18, 2019 Regional Water Supply Commission agenda be approved.
CARRIED

3. Adoption of Minutes

3.1. 19-667 Adoption of the Minutes of the June 19, 2019 Meeting

Attachments: June 19, 2019 Draft Minutes

MOVED by Commissioner St. Pierre, **SECONDED** by Commissioner Graham,
That the minutes of the June 19, 2019 Regional Water Supply Commission meeting be adopted as circulated.
CARRIED

4. Report of the Chair

The Chair extended condolences to the friends, family and colleagues at the District of Sooke of former Commissioner Parkinson who recently passed away and extended gratitude to Commissioner St. Pierre for assuming the position and representing the District.

She stated that she feels fortunate to be able to contribute to the security of our

water supply while other districts on the island are facing significant stressors attributed to climate change. It is important to recognize that we are not without risk although the summer was quiet and calm with respect to our water service.

5. Presentations/Delegations

5.1. Presentations

There were no Presentations.

5.2. Delegations

There were no Delegations.

6. Water Advisory Committee

The Chair stated there is no report from the Water Advisory Committee as they did not meet over the summer months.

7. General Manager's Report

7.1. Water Supply Outlook

T. Robbins advised that the water demand through the summer was typical.

7.2. 2020 Budget Preparation - October Meeting

T. Robbins advised that the draft 2020 Regional Water Supply budget will be presented at the October meeting.

8. Commission Business

8.1. 19-666 Proposed Transfer of the Admirals Road Water Main from the Juan de Fuca Water Distribution Service to the Regional Water Supply Service

Attachments: Staff Report: Proposed Transfer Of Admirals Rd Water Main

Appendix A: Figure 1 – Water Main located on Admirals Road, View Royal

A discussion took place regarding municipal servicing requirements and long term implications of access to the regional infrastructure.

Staff responded to questions from the Commission.

MOVED by Commissioner Isitt, **SECONDED** by Commissioner Young,
That the motion be amended to add the following wording to the end after 2020: "with the costs associated with the transmission function of the main being apportioned to the regional service."
DEFEATED
Opposed: Commissioners Mersereau, Baird, Chambers; Collins,de Vries, Duncan, Graham, Harper, Hicks, Kahakauwila, Logan, Loveday, Morrison, Roger, St. Pierre, Szpak; Taylor, Wade,Wood, Zhelka, Potts

DRAFT

MOVED by Commissioner Logan, **SECONDED** by Commissioner Baird,
That the Regional Water Supply Commission approve the transfer of the Admirals Road Water Main to the Regional Water Supply Service from the Juan de Fuca Water Distribution Service in fiscal 2020.
CARRIED
Opposed: Commissioners Isitt and Young

8.2. 19-783 Guidelines for Canadian Drinking Water Quality - Recent Change in Lead Guideline and Capital Regional District Actions

Attachments: Staff Report: Guidelines For Canadian Drinking Water Quality - Lead
Appendix A: Drinking Water: What About Lead?

T. Robbins introduced the report stating that Health Canada recently changed the maximum acceptable concentration for lead in drinking water and outlined the implications of the change and the ongoing and upcoming work to address this issue.

Dr. Stanwick, Island Health, was asked to respond to questions from the commission.

Discussion ensued regarding communications for informing the public of potential health risks of exposure to lead. The commission asked staff to report back on options for engaging and informing the public with regards to lead safety.

MOVED by Commissioner Szpak, **SECONDED** by Commissioner Baird,
That the Regional Water Supply Commission receive this report for information.
CARRIED

8.3. 19-794 Cross Connection Control Bylaw No. 3516 - Amendment

Attachments: Staff Report: Cross Connection Control Bylaw No. 3516 - Amendment
Appendix A: New Updated Bylaw 3516, Amendment Bylaw No. 2
Appendix B: Updated Bylaw 3516 - showing revisions

MOVED by Commissioner Baird, **SECONDED** by Commissioner Chambers,
That Items 8.3 and 8.4 be postponed.
CARRIED

8.4. 19-670 Summary of the 2019 Public and School Tours of the Greater Victoria

DRAFT

Water Supply Area and Water Supply Facilities

Attachments: Staff Report: Summary of the 2019 Public & School Tours of the GVWSA and Water Supply Facilities
Appendix A: 2019 Tour Brochure

MOVED by Commissioner Baird, **SECONDED** by Commissioner Chambers,
That Items 8.3 and 8.4 be postponed.
CARRIED

8.5. 19-668 Summary of Recommendations from Other Water Commissions

Attachments: Summary of Recommendations from Other Water Commissions

MOVED by Commissioner Logan, **SECONDED** by Commissioner Chambers,
That the Regional Water Supply Commission receive the Summary of Recommendations from Other Water Commissions for information.
CARRIED

8.6. 19-669 Weekly Water Watch Report

Attachments: Weekly Water Watch Report

MOVED by Commissioner Isitt, **SECONDED** by Commissioner Taylor,
That the Regional Water Supply Commission receive the September 8, 2019 Weekly Water Watch Report for information.
CARRIED

9. Motion with Notice

9.1. 19-686 Regional Water Supply Commission Support of the Provincial Water Conservation Measures; N.Chambers

MOVED by Commissioner Chambers, **SECONDED** by Commissioner Taylor,
That Item 9.1 be postponed.
CARRIED

10. New Business

There was no new business.

12. Adjournment

MOVED by Commissioner Graham, **SECONDED** by Commissioner Taylor,
That the September 18, 2019 of the Regional Water Supply Commission be adjourned at 1:31 p.m.
CARRIED

DRAFT

_____
CHAIR

_____
SECRETARY

DRAFT

Making a difference...together

RWSC 19-15

REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, OCTOBER 16, 2019

SUBJECT **REGIONAL WATER SUPPLY SERVICE - 2020 OPERATING AND CAPITAL BUDGET**

ISSUE

To provide an overview of the draft 2020 Regional Water Supply Service budget, highlighting the changes from the 2019 budget and the proposed 2020 budget figures. The report generally follows the information provided in the attached draft budget document (Appendix A).

BACKGROUND

This draft 2020 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 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 2020 Regional Water Supply Service budget has been prepared considering the CRD Board's 2020 service planning and financial expectations, which include identifying opportunities to realign or reallocate resources and seek potential synergies or efficiencies between departments and services, reviewing service levels and adjustments related to regulatory compliance, undertaking infrastructure improvements and upgrades to maintain service levels within the region including incremental ongoing operational and maintenance requirements. The following sets out the key components of the budget.

2019 Year End Financial Projections

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

- Supply System operating expenditures	$96,831	(0.7%)
- Agricultural water rate funding	$200,000	(16%)
- Capital fund transfers	$857,284	(10.4%)
- Debt servicing – principal and interest expenditures	-$354,667	(-4.0 %)
- Revenue	$799,448	(2.5%)

2020 Budget

Rate Base

The rate base for 2020 has increased by $451,459 from 2019. This increase relates to physical plant additions, including the Japan Gulch Treatment Plant upgrades and the Lubbe Dam improvements and capitalization values. The changes in physical plant and work in progress are listed on page 4 of the budget document, and are used to project the 2019 year end total physical plant value and determine the 2020 rate base.

Revenue Requirement

The revenue requirement for 2020 has increased by $1,940,456. This is resulting from an increase in operational expenses of $1,226,458, an increase in depreciation expenses of $35,598, net of expired depreciation on existing assets, and an increase in the return on the base of $678,400. The increase in the return on the rate base is a result of the growing asset base, an increase in the equity funded assets/capital improvements and an updated rate of retun on assets funded by equity based on the long term Canada bond rate. See page 3 of the budget document.

Operating Budget

The 2020 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 2020 operating budget increase is $430,962, plus additional budget requests for one-time and onoing expenditures in the amounts of $175,000 and $370,500 respectively. These requests are summarized as follows:

- $25,000 one-time funding (year three 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.
- $90,000 labour budget increase for 0.5 FTE (full time equivalent staff position) – water operator position (shared with JDF Water Distribution Service), necessary to fulfill confined space entry requirements
- $180,000 labour budget increase for 1.0 FTE – water operator position, necessary to complete increased annual maintenance and monitoring of the 14 dams in the Regional Water Supply in order to meet Dam Safety requirements
- $23,000 labour budget increase – service level emergency planning and response coordinator position (shared between multiple CRD services)
- $112,000 labour budget increase for 1.0 FTE – work order planner/scheduler, to improve the effectiveness and efficiency of the Regional Water Supply System plant maintenance program
- $291,220 negotiated wage/salary labour budget and internal allocation increases
- $75,000 increase to general consulting services budget
- $30,242 minor operating budget adjustments

Operating budget forecasts for 2021 – 2024 have been presented for information.

Capital Budget

There are a number of capital projects planned for 2020 with a total value of $19,691,000, including $6,274,000 in carry forward projects, most of which are in-stream, multi-year projects such as the Butchart Dam No. 5 project with a $3,000,000 budget carried forward from 2019, which has been delayed due to the delay in completion of the Lubbe Dam No. 4. Project. There is also $1,505,000 in projects cost-shared with the Juan de Fuca Water Distribution Service (pages 11-47 of the budget document). The major projects in 2020 include construction of new supply meter vaults to replace the existing St. Giles and Cecelia meters, seismic remediation of Butchart Dam No.5, seismic instrumentation installations on the Sooke Lake Reservoir and Goldstream Reservoir dams, decommissioning of the Charters Creek dam, and continued

restoration of the Leech Water Supply Area including road and bridge improvements.

A five year capital plan has been presented for information. The total five year (2020 to 2024) capital plan budget is $75.461 million, plus $3.575 million in projects cost-shared with the Juan de Fuca Water Distribution Service. The major projects planned over the next five years include replacement of segments of the #3 and #4 transmission mains, replacement of the ultraviolet disinfection units at the Japan Gulch – Goldstream facility, and the potential need for a pH adjustment facility.

Capital and Debt Expenditures

The 2020 capital expenditures will be partially funded through a transfer to the water capital fund in the amount of $9,107,214, with the balance funded through existing cash reserves and borrowed funds (capital funds on hand). See pages 9-10 of the budget document for the funding source summary. 2020 debt expenditures for existing debt servicing are budgeted to be $8,463,204. Budgeted debt servicing expenditures have decreased by $492,717 from 2019, primarily due to a lower negotiated interest rate on an existing loan that has reached year 10 of a 15 year term, resulting in approximately $300,000 in interest savings annually. Also, the $3 million borrowing planned in 2019 was not required to fund the capital program due to the availability of capital reserve funds so the budgeted principal and interest costs were not incurred. There is no borrowing required in 2020. The long term debt obligations are summarized on the attached graphs (Appendix B). A $12.5 million loan authorization was completed in 2014 to allow borrowing to partially fund the 2014-2019 year capital plan. The authorization expires in 2019 and a total of $9.5 million was borrowed under the authorization. A new loan authorization process will be undertaken in early 2021 to allow borrowing in the fall.

Agricultural Water Rate Funding

The total budget for the agricultural water rate funding has been increased by $250,000 to $1,500,000. The 2020 agricultural water rate has been maintained at the 2019 rate of $0.2105 per cubic metre. The completion of the region's agricultural land use inventory, crop production and agricultural water demand model through the British Columbia Ministry of Agriculture in partnership with the CRD has been delayed. The final report and model are expected before year end, which will provide information that will help inform future rate and budget decisions. A summary of the agricultural water volumes and agricultural water rate payments for 2011 to 2018 is attached (Appendix C).

Water Demand

Total water demand across the Regional Water Supply Service area continues to exceed the annual budgeted demand figure as a result of the continued rate of development and growth across the service area, but also due to the periods of warm, dry weather through the spring and summer. The total 2019 year end demand is projected to be 48,000,000 cubic metres which is higher than the 2019 budgeted demand of 46,500,000 cubic metres. The net revenue resulting from this additional demand is proposed to be included in the water capital fund transfer at year end 2019. The recommended 2020 water rate has been calculated using a budget demand of 48,000,000 cubic metres. See page 6 of the budget document.

Proposed 2020 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 2020. The proposed 2020 wholesale rate is $0.6968 per cubic metre. (Page 7 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.

RECOMMENDATIONS

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

1. Approve the 2020 Capital Budget and the Five Year Capital Plan;
2. Approve the 2020 Operating Budget;
3. Approve the 2020 wholesale water rate of $0.6968 per cubic metre;
4. Approve the 2020 agricultural water rate of $0.2105 per cubic metre;
5. Direct staff to balance the 2019 actual revenue and expense on the transfer to the water capital fund; and
6. Direct staff to amend the Water Rates Bylaw accordingly.

Submitted by:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Nelson Chan, M.B.A., C.P.A., C.M.A., Chief Financial Officer, Financial Services
Concurrence:	Robert Lapham, M.C.I.P., R.P.P., Chief Administrative Officer

TR:dd

Attachments: 4

Appendix A: 2020 Regional Water Supply Service Budget
Appendix B: Long Term Debt Obligations Summary
Appendix C: Agricultural Water Volumes and Rate Payments for 2011 – 2018
Appendix D: Wholesale Water Rate History and Projection

CAPITAL REGIONAL DISTRICT

2020 BUDGET

Regional Water Supply

COMMISSION REVIEW

OCTOBER 2019

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)
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	
Expired:	$3,000,000	

FUNDING:

Costs are recovered through the sale of bulk water.

Rate Base for 2020 Revenue Year

	2018 Application	2019 Application	End of 2019 for '20 Applic.	Change	
Wholesale System					
Physical Plant	$ 226,180,350	$ 232,755,867	$ 231,437,695	$ (1,318,172)	Note 1
Construction Work In Progress	9,205,888	4,667,513	6,285,937	1,618,424	Note 1
Cash Working Capital	1,782,018	1,840,531	1,991,738	151,207	
Inventory	225,000	225,000	225,000	-	
Total Wholesale Rate Base	$ 237,393,256	$ 239,488,911	**$ 239,940,370**	$ 451,459	

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

Revenue Requirements for 2020 Year

	2018 Application	2019 Application	2020 Application	Change	
Wholesale					
Operations & maintenance	$ 14,454,145	$ 14,928,749	$ 16,155,207	$ 1,226,458	
Depreciation	6,835,514	6,207,713	6,243,311	$ 35,598	
Return on rate base	9,190,400	10,948,000	11,626,400	$ 678,400	Note 1
Subtotal of above	$ 30,480,059	$ 32,084,462	$ 34,024,918	$ 1,940,456	
Non-rate revenue including unaccounted water revenue	(582,100)	(582,060)	(582,060)	$ -	
Total wholesale	$ 29,897,959	$ 31,502,402	$ 33,442,858	$ 1,940,456	

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

Schedule of Change in Physical Plant & Work In Progress

Wholesale

Projected Asset Additions	Projected Assets Capitalized
Japan Gulch Treatment Plant Upgrades	$ 8,938,307
Lubbe Dam Safety Improvements	3,161,583
Dam Actuators	338,280
Goldream River Bridge Replacement	300,000
Major Main Repairs	293,100
Dam Improvements	200,000
Meter Replacement	197,036
Stelly's Pump Station Assessment	183,704
Water Supply Eqpt Upgrades	160,000
Forrest Fuel Management Roads	150,000
Sooke Spillway Gate Standby Power	150,000
Watershed Security Enhancements	137,000
Leech River Restoration	108,986
SCDA Repairs and Equipment Replacement	100,000
Sooke Dam Safety Improvements	99,690
SRR Disinfection Facility component upgrades	98,377
Leech and Cragg River Stability Assesment	90,000
Computer upgrades	85,000
Transmission System Component Replacement	80,000
Leech Tunnel Intake Stop Log Replacement	75,000
Building Modification	60,000
Main Lab Equipment Replacement	59,856
Sooke Intake Screens Condition Assessment/Replacement	57,659
Wildlife Habitat Assessment	55,832
Humpback Overflow Channel Assessment	50,583
Other Projects (26 minor projects under $50k)	663,675
Total projected assets capitalized	$ 15,893,668
Less: current years depreciation	(5,716,491)
Less: change in prior year forecast addition estimates, & disposals.	(11,495,349)
Change in Physical Plant	$ (1,318,172)

Projected Construction Work In Progress (CWIP)

Sooke Intake Screens Condition Assessment/Replacement	$ 1,936,485
Sooke Dam Safety Improvements	801,384
Post Disaster Emergency Water Supply	602,847
Meter Replacement	436,488
Weeks Main Road Upgrade	300,000
Leech River Hydromet	270,000
Dam Safety Review	250,711
Japan Gulch Treatment Plant Upgrades	200,000
Strategic Asset Management Plan	138,073
Water Quality Main Lab Renovation	100,000
Fish Stream Assessments	85,138
Watershed Security Enhancements	78,665
Critical Equip Storage Building	75,000
Large Equipment Storage	75,000
Wildlife Habitat Assessment	75,000
Transmission system component upgrades	73,443
Asset Reconciliation/Transfer agreement study	72,708
SCDA Repairs and Equipment Replacement	69,421
Weeks Lake Pit Assessment	65,000
Water Quality Database Upgrade	52,022
Other Projects (21 minor projects under $50k)	528,552
Projected CWIP	$ 6,285,937
Less Prior years projected CWIP	(4,667,513)
Change in CWIP	$ 1,618,424

Change in Budget 2019 to 2020 Service: 2.670 Regional Water Supply	Total Expenditure	Comments
2019 Budget	**32,111,512**	
Change in Labour:		
Labour charges	403,220	Labour charges (Salaries and overhead)
Additional ongoing labour charges:	90,000	10a-2 Water Infrastructure Resilience
	180,000	10a-2 Water Infrastructure Resilience
	23,000	7a-1 Regional Coordination of Emergency Services
Total Change in Labour	696,220	
Other Changes:		
Transfers to Capital Funds	1,210,141	
Principal & Interest Payments	(492,717)	
One-time budget items	25,000	NSERC funding
One-time budget items	150,000	10d-3 Watershed Monitoring
Consultants	75,000	10a-2 Water Infrastructure Resilience
Agriculture Water Rate Funding	250,000	
Other	30,242	Minor budget changes
Total Other Changes	1,247,666	
2020 Budget	**34,055,398**	

Overall 2019 Budget Performance
(expected variance to budget and surplus treatment)

Revenue has increased by $799,000 (2.5%) over budget due to higher than budgeted water sales. This additional revenue will partially be used to offset one time overages on operating costs associated with the Lubbe Dam project. The surplus was further increased by a 4.0% savings on interest expense from the refinancing of two loans (in Novemeber 2018 and June 2019). The net surplus of $880,000 will be transferred to the services' Water Capital Fund.

2020 Demand Estimate

Wholesale Demand

Years	Actual Demand cu.metre	Budgeted Demand cu.metre
2016	47,602,000	43,152,000
2017	46,515,000	45,000,000
2018	48,300,036	45,000,000
2019	48,000,000*	46,500,000

2020 Demand Estimate	**48,000,000**

** Projected consumption for 2019*

Summary of Wholesale Water Rates

	2016	2017	2018	2019	2020	Change
Wholesale water rate						
Unit cost per cu.m.	$0.6375	$0.6375	$0.6644	$0.6775	$0.6968	$0.0193

Wholesale Water Rate Increase Impact on Residential Water Bill

Average Annual Consumption : 235.0 cubic metres

Charge for Twelve Months Consumption		Annual Charge	2020 Annual Change $
Average Consumption	2019	$ 159.21	
	2020	$ 163.75	$ 4.54
Half Average Consumption	2019	$ 79.61	
	2020	$ 81.87	$ 2.27
Twice Average Consumption	2019	$ 318.43	
	2020	$ 327.50	$ 9.07

CAPITAL REGIONAL DISTRICT

Program Group: CRD-Regional Water Supply

SUMMARY	2019 BOARD BUDGET	2019 ESTIMATED ACTUAL	2020 BUDGET REQUEST: 2020 CORE BUDGET	2020 BUDGET REQUEST: 2020 ONGOING	2020 BUDGET REQUEST: 2020 ONE-TIME	2020 BUDGET REQUEST: TOTAL (COL 4, 5 & 6)	FUTURE PROJECTIONS: 2021	2022	2023	2024
1	2	3	4	5	6	7	8	9	10	11
GENERAL PROGRAM EXPENDITURES:										
WATERSHED PROTECTION	5,218,523	4,913,925	5,283,876	-	175,000	5,458,876	5,425,733	5,544,287	5,703,178	5,828,442
WATER MANAGEMENT	4,592,686	5,222,866	4,855,519	368,000	-	5,223,519	5,314,050	5,428,350	5,546,588	5,666,918
WATER QUALITY	1,530,548	1,548,364	1,609,091	2,500	-	1,611,591	1,652,301	1,664,579	1,702,594	1,736,433
CROSS CONNECTION	729,968	720,823	744,787	-	-	744,787	761,122	777,813	794,874	812,309
DEMAND MANAGEMENT	797,794	724,183	813,710	-	-	813,710	831,468	849,438	867,908	886,802
INFRASTRUCTURE ENGINEERING	486,260	441,400	494,110	-	-	494,110	528,485	540,113	551,993	564,136
FLEET OPERATION & MAINTENANCE	(274,302)	(274,350)	(299,294)	-	-	(299,294)	(305,879)	(312,607)	(319,485)	(326,513)
CUSTOMER TECHNICAL SERVICES & GM SUPPORT *	597,267	478,364	607,908	-	-	607,908	621,113	629,644	643,340	657,301
TOTAL OPERATING EXPENDITURES	13,678,744	13,775,575	14,109,706	370,500	175,000	14,655,206	14,828,393	15,121,617	15,490,990	15,825,828
Percentage increase over prior year's board budget			3.15%			7.14%	1.18%	1.98%	2.44%	2.16%
AGRICULTURAL WATER RATE FUNDING	1,250,000	1,450,000	1,500,000	-	-	1,500,000	1,550,000	1,600,000	1,650,000	1,750,000
			20.00%			20.00%	3.33%	3.23%	3.13%	6.06%
CAPITAL EXPENDITURES &TRANSFERS										
TRANSFER TO WATER CAPITAL FUND	7,895,496	8,779,350	9,107,214	-	-	9,107,214	9,800,000	10,300,000	11,300,000	16,600,000
TRANSFER TO EQUIPMENT REPLACEMENT FUND	274,301	274,301	299,294	-	-	299,294	305,878	312,607	319,484	326,513
TRANSFER TO DEBT RESERVE FUND	57,050	30,480	30,480	-	-	30,480	39,480	100,480	30,480	111,480
TOTAL CAPITAL EXPENDITURES & TRANSFERS	8,226,847	9,084,131	9,436,988	-	-	9,436,988	10,145,358	10,713,087	11,649,964	17,037,993
DEBT										
DEBT - INTEREST AND PRINCIPAL	8,955,921	8,601,254	8,463,204	-	-	8,463,204	8,484,204	8,706,477	8,276,713	3,499,130
TOTAL DEBT EXPENDITURES	8,955,921	8,601,254	8,463,204	-	-	8,463,204	8,484,204	8,706,477	8,276,713	3,499,130
DEFICIT TRANSFERRED TO FOLLOWING YR										
TRANSFER TO FOLLOWING YEAR DEFICIT CARRY FORWARD										
TOTAL EXPENDITURES	32,111,512	32,910,960	33,509,898	370,500	175,000	34,055,398	35,007,956	36,141,182	37,067,668	38,112,950
SOURCES OF FUNDING										
REVENUE - SALES	(31,502,402)	(32,300,000)	(32,897,358)	(370,500)	(175,000)	(33,442,858)	(34,395,416)	(35,528,642)	(36,455,128)	(37,500,410)
REVENUE - OTHER	(609,110)	(610,960)	(612,540)	-	-	(612,540)	(612,540)	(612,540)	(612,540)	(612,540)
TOTAL SOURCE OF FUNDING FROM OPERATIONS	(32,111,512)	(32,910,960)	(33,509,898)	(370,500)	(175,000)	(34,055,398)	(35,007,956)	(36,141,182)	(37,067,668)	(38,112,950)
TRANSFER FROM PRIOR YEAR	-	-	-	-	-	-	-	-	-	-
TRANSFER TO FOLLOWING YEAR SURPLUS CARRY FORWARD										
TOTAL SOURCES OF FUNDING	(32,111,512)	(32,910,960)	(33,509,898)	(370,500)	(175,000)	(34,055,398)	(35,007,956)	(36,141,182)	(37,067,668)	(38,112,950)
Percentage increase over prior year's board budget			4.35%			6.05%	2.80%	3.24%	2.56%	2.82%

CAPITAL REGIONAL DISTRICT **SCHEDULE B**

FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2020 to 2024

Service No. 2.670 Regional Water Supply		Carry Forward from 2019	2020	2021	2022	2023	2024	TOTAL
EXPENDITURE								
Buildings	B	$225,000	$590,000	$1,700,000	$2,000,000	$50,000	$0	$4,340,000
Equipment	E	$575,000	$2,655,000	$2,050,000	$6,025,000	$1,025,000	$805,000	$12,560,000
Land	L	$205,000	$1,245,000	$750,000	$530,000	$570,000	$400,000	$3,495,000
Engineered Structures	S	$5,269,000	$14,709,000	$6,610,000	$7,240,000	$7,065,000	$18,315,000	$53,939,000
Vehicles	V	$0	$492,000	$185,000	$150,000	$50,000	$250,000	$1,127,000
		$6,274,000	**$19,691,000**	**$11,295,000**	**$15,945,000**	**$8,760,000**	**$19,770,000**	**$75,461,000**
SOURCE OF FUNDS								
Capital Funds on Hand	Cap	$6,274,000	$19,324,000	$10,210,000	$8,795,000	$8,710,000	$11,420,000	$58,459,000
Debenture Debt (New Debt Only)	Debt	$0	$0	$900,000	$7,000,000	$0	$8,100,000	$16,000,000
Equipment Replacement Fund	ERF	$0	$367,000	$185,000	$150,000	$50,000	$250,000	$1,002,000
Grants (Federal, Provincial)	Grant	$0	$0	$0	$0	$0	$0	$0
Donations / Third Party Funding	Other	$0	$0	$0	$0	$0	$0	$0
Reserve Fund	Res	$0	$0	$0	$0	$0	$0	$0
Short Term Loans	STLoan	$0	$0	$0	$0	$0	$0	$0
		$6,274,000	**$19,691,000**	**$11,295,000**	**$15,945,000**	**$8,760,000**	**$19,770,000**	**$75,461,000**

CAPITAL REGIONAL DISTRICT **SCHEDULE B**

FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2020 to 2024

Service No.	**2.670/2.680**							
	Regional Water Supply & JDF Water Distribution Combo	**Carry Forward from 2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**TOTAL**
EXPENDITURE								
Buildings	B	$70,000	$190,000	$80,000	$80,000	$80,000	$80,000	$510,000
Equipment	E	$450,000	$1,315,000	$655,000	$365,000	$365,000	$365,000	$3,065,000
Land	L	$0	$0	$0	$0	$0	$0	$0
Engineered Structures	S	$0	$0	$0	$0	$0	$0	$0
Vehicles	V	$0	$0	$0	$0	$0	$0	$0
		$520,000	**$1,505,000**	**$735,000**	**$445,000**	**$445,000**	**$445,000**	**$3,575,000**
SOURCE OF FUNDS								
Capital Funds on Hand	Cap	$520,000	$1,505,000	$735,000	$445,000	$445,000	$445,000	$3,575,000
Debenture Debt (New Debt Only)	Debt	$0	$0	$0	$0	$0	$0	$0
Equipment Replacement Fund	ERF	$0	$0	$0	$0	$0	$0	$0
Grants (Federal, Provincial)	Grant	$0	$0	$0	$0	$0	$0	$0
Donations / Third Party Funding	Other	$0	$0	$0	$0	$0	$0	$0
Reserve Fund	Res	$0	$0	$0	$0	$0	$0	$0
		$520,000	**$1,505,000**	**$735,000**	**$445,000**	**$445,000**	**$445,000**	**$3,575,000**

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM
2020 & Forecast 2021 to 2024

Service #: 2.670
Service Name: Regional Water Supply

Capital Exp. 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

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

Funding Source Codes (con't)
Res = Reserve Fund
STLoan = Short Term Loans
WU - Water Utility

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

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
This column represents the total project budget not only within the 5-year window.

FIVE YEAR FINANCIAL PLAN

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
WATERSHED PROTECTION													
Planning													
17-01	Renewal	Repair of Historic Goldstream Powerhouse Building	Repairs of historic Goldstream Powerhouse building	$90,000	B	WU	$0	$0	$0	$0	$50,000	$0	$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	$0	**$100,000**	$0	$0	$0	$0	**$100,000**
18-01	New	Post-Wildfire Debris Flow Modelling	Site specific modelling of the potential impact to Sooke Lake Reservoir and infrastructure of a significant wildfire in the Sooke WSA.	$150,000	L	WU	$100,000	$100,000	$0	$0	$0	$0	$100,000
18-10	Study	Species-at-Risk Wildlife Habitat	An assessment (office and field) and plan for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA.	$135,000	L	WU	$0	$50,000	$25,000	$0	$0	$0	$75,000
19-30	Study	Leech WSA Lakes/Tributaries Assessment	An assessment of the physical, chemical and biological parameters of the Leech WSA source waterbodies.	$75,000	L	WU	$25,000	$75,000	$0	$0	$0	$0	$75,000
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	$0	**$0**	**$180,000**	$0	$0	$0	$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**	**$30,000**	**L**	**WU**	**-**	**$15,000**	**$15,000**	**$0**	**$0**	**$0**	**$30,000**
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**	**-**	**$55,000**	**$85,000**	**$70,000**	**$50,000**	**$0**	**$260,000**
20-28	**Study**	**GVWSA Forest Resilience - Assessments of forest health and resilience**	**Field assesments to better understand current forest health and resilience.**	**$230,000**	**L**	**WU**	**-**	**$75,000**	**$95,000**	**$60,000**	**$0**	**$0**	**$230,000**
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.**	**$300,000**	**L**	**WU**	**-**	**$0**	**$0**	**$100,000**	**$100,000**	**$100,000**	**$300,000**
23-02	Renewal	GVWSA LiDAR Mapping	Detailed contour mapping of ground, vegetation and tree cover (3D scanning)	$120,000	L	WU	$0	$0	$0	$0	$120,000	$0	$120,000

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
Capital													
09-01	Renewal	Leech River Watershed Restoration	A 17 year project to restore the Leech WSA lands for water supply.	$5,756,000	L	WU	$0	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$1,000,000**
16-01	Renewal	Replace Gatehouse at Goldstream Entrance	The security/first aid gatehouse is past end of life and is to be replaced with more effective security infrastructure.	**$195,000**	B	WU	$140,000	**$190,000**	$0	$0	$0	$0	**$190,000**
17-09	Renewal	Goldstream Gate Upgrade	The main entrance gate in Goldstream is past end of life and requires replacement with lifting in/out gates.	$75,000	S	WU	$25,000	$25,000	$0	$0	$0	$0	$25,000
16-06	Renewal	**Goldstream IWS Field Office**	Renewal of Water Quality field office, lab and equipment and supplies storage and Watershed Protection office, training, emergency response, storage and interpretation space at Goldstream entrance, replacing temporary ATCO trailers.	$4,050,000	B	WU	$0	$300,000	$1,700,000	$2,000,000	$0	$0	$4,000,000
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.	**$480,000**	E	WU	$0	**$100,000**	**$25,000**	$0	$0	$0	**$125,000**
17-06	New	Weeks Lake Area Environmental Assessment and Remediation	Assessment and remediation of the Weeks Lake gravel pit (lead from firearms) and Weeks Lake (metals and hydrocarbons from dumping).	**$365,000**	L	WU	$80,000	**$275,000**	$50,000	$0	$0	$0	**$325,000**
17-07	Renewal	**Weeks Main Road Upgrade**	**Road upgrade and new construction to re-route Weeks Main and bring the road to regulatory standard.**	$175,000	S	WU	$25,000	$25,000	$0	$0	$0	$0	$25,000
18-05	New	**GVWSA Forest Fuel Management**	Implementation of forest fuel management in strategic locations for wildfire risk management in the GVWSA.	**$650,000**	L	WU	$0	**$100,000**	**$100,000**	**$100,000**	**$100,000**	**$100,000**	$500,000
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	$0	$0	$0	$300,000	$0	$0	$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	$0	**$130,000**	$0	$0	$0	$0	**$130,000**
20-01	Replacement	Kapoor Main Mile 1 Bridge and Asphalt Upgrade	Replacement of the existing undersized culvert with a large bridge as well as nearby asphalt repair or replacement.	$450,000	S	WU	$0	**$0**	**$450,000**	$0	$0	$0	$450,000
21-01	New	31N Bridge to Replace Undersized Culvert (Goldstream WSA)	Replacement of the existing undersized and failing culvert with a bridge structure.	$200,000	S	WU	$0	$0	$200,000	$0	$0	$0	$200,000
18-11	New	Large Equipment Storage (Field Operations Centre)	Two additional bays are to be added to the existing fire/spill equipment warehouse at the FOC to shelter large water supply infrastructure equipment.	$185,000	B	WU	$85,000	**$100,000**	$0	$0	$0	$0	**$100,000**
20-09	**New**	**Small workboat for Goldstream WSA**	**Small boat dedicated to the Goldstream WSA for wildlife biology work**	**$20,000**	**E**	**WU**	**-**	**$20,000**	**$0**	**$0**	**$0**	**$0**	**$20,000**
20-29	**Renewal**	**Gravel crushing 14G and 10S quarry (Sooke and Goldstream WSA)**	**Production of gravel at existing quarries in Sooke and Goldstream WSAs.**	**$200,000**	**L**	**WU**	**-**	**$200,000**	**$0**	**$0**	**$0**	**$0**	**$200,000**
20-30	**Renewal**	**Surprise Creek Culvert Replacement (Sooke WSA)**	**Undersized culvert replacement**	**$200,000**	**S**	**WU**	**-**	**$200,000**	**$0**	**$0**	**$0**	**$0**	**$200,000**
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**	**-**	**$0**	**$0**	**$325,000**	**$0**	**$0**	**$325,000**
23-03	**New**	**Air curtain burner for fuel management**	**A transportable burner that provides more effective and rapid burning of woody debris with reduced smoke emissions.**	**$50,000**	**E**	**WU**	**-**	**$0**	**$0**	**$0**	**$50,000**	**$0**	**$50,000**
23-04	**Renewal**	**17S/Sooke Main Bridge Replacement**	**Undersized bridge replacement**	**$300,000**	**S**	**WU**	**-**	**$0**	**$0**	**$0**	**$300,000**	**$0**	**$300,000**
24-01	**Renewal**	**6M/Judge Creek Culvert Replacement (Sooke WSA)**	**Undersized culvert replacement**	**$200,000**	**S**	**WU**	**-**	**$0**	**$0**	**$0**	**$0**	**$200,000**	**$200,000**
Sub-Total Watershed Protection				$16,241,000			$480,000	$2,335,000	$3,125,000	$3,155,000	$970,000	$600,000	$10,185,000

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
INFRASTRUCTURE ENGINEERING AND OPERATIONS													
Planning													
16-07	New	Asset Reconciliation / Transfer Agreements	Identify, confirm and reconcile supply system assets ownership.	$100,000	S	WU	$15,000	$15,000	$0	$0	$0	$0	$15,000
16-10	New	Post Disaster Emergency Water Supply	Identify and procure emergency systems for post disaster preparedness.	$1,300,000	S	WU	$0	$200,000	$200,000	$200,000	$200,000	$200,000	$1,000,000
17-13	New	Strategic Asset Management Plan	Development of a plan to inform future areas of study and highlight critical infrastructure improvements.	$300,000	S	WU	$20,000	$85,000	$0	$0	$0	$0	$85,000
17-14	Renewal	Hydraulic Actuators Assessment/Replacement	Assessment and replacement of hydraulic actuators that are key to operation of the water supply system.	$450,000	E	WU	$150,000	$150,000	`	$0	$0	$0	$150,000
19-04	New	Seismic Assessment of Critical Facilities	Identified as a priority from Strategic Plan, a seismic assessment of critical facilities and a supply system resilience feasibility study will be undertaken.	$255,000	S	WU	$55,000	$55,000	$200,000	$0	$0	$0	$255,000
19-15	New	Hydraulic Capacity Assessment and Transient Pressure Analysis	Determine the existing level-of-service for the RWSC transmission system and conduct a transient pressure analysis	$200,000	S	WU	$100,000	$100,000	$100,000	$0	$0	$0	$200,000
19-28	Study	Goldstream System Hydraulic Analysis	Analysis and documentation of hydraulics of the Goldstream system.	$50,000	S	WU	$0	$50,000	$0	$0	$0	$0	$50,000
20-02	New	Supply System Resilience Feasibility Study	Identified as a priority from the Strategic Plan, a study of water supply system's resilience and high level measures to make important assets resilient will be undertaken	$200,000	S	WU	$0	$200,000	$0	$0	$0	$0	$200,000
20-07	Study	Deep Northern Intake & Transmission Pipeline Study	A technical and business case analysis will be carried out with possible expansion and filtration study upstream of the head tank - this is to replace 2016-09	$250,000	S	WU	$0	$250,000	$0	$0	$0	$0	$250,000
20-08	Study	Regional Water DCC Program	Design of a Regional DCC Program	$200,000	S	WU	$0	$200,000	$0	$0	$0	$0	$200,000
20-10	**Study**	**Condition & Vulnerability Assessment**	**Conduct a condition assessment of critical supply infrastructure and assess its possibility of risk.**	**$200,000**	**S**	**WU**	$0	**$200,000**	$0	$0	$0	$0	**$200,000**
20-11	**Study**	**Develop Strategic Plan**	**Develop a long term strategic plan to anticipate water demand, water treatment, and future siting of facilities.**	**$500,000**	**S**	**WU**	$0	**$500,000**	$0	$0	$0	$0	**$500,000**
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**	$0	$0	**$150,000**	$0	$0	$0	**$150,000**
Capital													
15-03	Renewal	Sooke Intake Screens Condition Assessment & Replacement	Renewal of the aging Sooke Intake Tower and equipment to maintain water supply.	**$2,205,000**	S	WU	$500,000	**$500,000**	$0	$0	$0	$0	$500,000
17-23	New	Japan Gulch Emergency Notification System	Design and implementation of an emergency notification system.	$205,000	S	WU	$0	$200,000	$0	$0	$0	$0	$200,000
17-24	Replacement	SCADA Equipment Replacement Program	Planned replacement of SCADA equipment as recommended from the SCADA Master Plan.	$825,000	E	WU	$0	$200,000	$500,000	$0	$0	$0	$700,000
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	**$100,000**	$0	**$5,200,000**	$0	$0	$5,300,000
18-08	Replacement	Bulk Supply Meter Replacement Program	Planned replacement of aging bulk meter replacement based upon a condition assessment and water audit.	$2,200,000	E	WU	$200,000	**$600,000**	$400,000	$200,000	$200,000	$200,000	$1,600,000
18-15	Renewal	Cathodic Protection Program	Study deficiencies in the current material protection and implement recommendations.	$420,000	S	WU	$0	$100,000	$80,000	$80,000	$80,000	**$80,000**	$420,000
Sub-Total Page 1 Infrastructure Engineering and Operations				$15,410,000			$1,140,000	$3,705,000	$1,630,000	$5,680,000	$480,000	$480,000	$11,975,000

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
18-17	New	Sooke Spillway Gate Power	Addition of standby power to for the Sooke Spillway gates.	$150,000	E	WU	$20,000	$20,000	$0	$0	$0	$0	$20,000
18-18	Replacement	Main No.3 Segment Replacement	Replacement of segments of Main No. 3 based upon previous studies.	$15,090,000	S	WU	$140,000	**$140,000**	**$250,000**	$4,900,000	$4,900,000	$4,900,000	$15,090,000
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.**	**$500,000**	S	WU	$250,000	**$500,000**	$0	$0	$0	$0	**$500,000**
19-23	New	Critical Spare Equipment Storage & Pipe Yard	Plan, design and construct a critical equipment storage building.	$400,000	S	WU	$0	$200,000	$200,000	$0	$0	$0	**$400,000**
20-12	Replacement	**Valve Chamber Upgrades**	**Replace failing valves and appurtenances along the RWS supply system.**	**$400,000**	**S**	**WU**	$0	**$100,000**	**$100,000**	**$100,000**	**$100,000**	$0	**$400,000**
20-13	New	**Electrical Isolation Audit**	**Inspection audit of facilities to ensure that there is sufficient electrical separation and isolation for safety.**	**$50,000**	**S**	**WU**	$0	**$50,000**	$0	$0	$0	$0	**$50,000**
20-14	Renewal	**Parkdale Meter Decommission and Demolition**	**The Parkdale meter facility is no longer in use and has been identified as requiring decommissioning and demolition.**	**$150,000**	**S**	**WU**	$0	**$150,000**	$0	$0	$0	$0	**$150,000**
20-15	Replacement	**Cook & Somerset Meter Station Backflow Installation**	**To isolate backflow from the City of Victoria's distribution system into the RWS supply system backflow improvements are required at two facilities**	**$75,000**	**S**	**WU**	$0	**$75,000**	$0	$0	$0	$0	**$75,000**
20-16	Replacement	**St Giles & Cecelia Meter Replacements**	**Replacement of system monitoring and billing meters as well as their enclosures.**	**$1,000,000**	**S**	**WU**	$0	**$1,000,000**	$0	$0	$0	$0	**$1,000,000**
20-17	Replacement	**Decommission Smith Hill Site**	**Plan and decommission the abandoned Smith Hill reservoir site.**	**$650,000**	**S**	**WU**	$0	**$150,000**	$0	$0	**$500,000**	$0	**$650,000**
20-18	Replacement	**Goldstream Main #4 Replacement**	**Plan and replacement of the concrete pipe portion of Main #4.**	**$12,150,000**	**S**	**WU**	$0	**$150,000**	$0	$0	$0	**$12,000,000**	**$12,150,000**
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**	$0	**$500,000**	**$2,000,000**	$0	$0	$0	**$2,500,000**
22-01	Study	Kapoor Tunnel Inspection	Condition Inspection of the Kapoor Tunnel	$100,000	S	WU	$0	$0	$0	$100,000	$0	$0	$100,000
Sub-Total Infrastructure Engineering and Operations				$48,625,000			$1,550,000	$6,740,000	$4,180,000	$10,780,000	$5,980,000	$17,380,000	$45,060,000
DAM SAFETY PROGRAM													
16-16	Renewal	Implications from Goldstream Dam Safety Review	Conduct a dam safety review and some improvements for the Goldstream dams.	$705,000	S	WU	$30,000	$180,000	$100,000	$75,000	**$75,000**	**$75,000**	$505,000
16-17	Renewal	Butchart Dam No. 5 Remediation	Replacement of Butchart Dam No. 5	$3,550,000	S	WU	$3,000,000	**$3,200,000**	$0	$0	$0	$0	$3,200,000
17-25	Renewal	Implications from Sooke Dam Safety Review	Conduct a dam safety review and some improvements for the Sooke Dam.	$1,350,000	S	WU	$275,000	$575,000	$120,000	$300,000	**$100,000**	**$100,000**	$1,195,000
18-19	New	Sooke Lake Dam - Instrumentation System Improvements	Complete instrumentation system improvements for the Sooke Dam.	$1,300,000	S	WU	$475,000	$750,000	$200,000	$100,000	$150,000	**$100,000**	$1,300,000
18-20	New	Sooke Lake Dam - Breach Risk Reduction Measures	Implement measures to reduce Sooke Lake Dam breach.	$400,000	S	WU	$150,000	$350,000	$0	$0	$0	$0	$350,000
19-07	New	Integrate Dam Performance and Hydromet to SCADA	Integrate the dam performance piezometers and weirs and Hydromet stations to report to IO through the existing SCADA system - refer to MMC notes and relates to 17-24	$1,100,000	E	WU	$0	$500,000	$500,000	$0	$0	$0	$1,000,000
19-08	New	Charters Dam Decommissioning	Charters Dam has been retired from drinking water service, no other interested owners, plan to decommission - refer to MMc notes of Jan. 11, 2018 meeting with PES, relates to 21-02	$1,800,000	S	WU	$0	$900,000	$900,000	$0	$0	$0	$1,800,000
19-09	New	Cabin Pond Dams Decommissioning	The Cabin Pond Dams (x2) have been retired from drinking water service, no other interested owners, plan to decommission - refer to MMc notes of Jan. 11, 2018 meeting with PES	$600,000	S	WU	$0	$500,000	$0	$0	$0	$0	$500,000
19-12	New	Goldstream Dams Instrumentation Improvements	Conduct instrumentation improvements based upon Thurber's 2018 study results.	$1,000,000	S	WU	$100,000	$500,000	$400,000	$0	$0	$0	$900,000
19-13	New	HydroMet Station Upgrades	IE shares hydromet assets with WP, the equipment is getting older and will need to be replaced (does not include pending SCADA effort)	$250,000	E	WU	$0	$50,000	$50,000	$50,000	$50,000	**$50,000**	$250,000
20-19	Replacement	**Goldstream System High Level Outlet Valve Replacements**	**The Goldstream and Butchart high level outlet valves have been indentified as requiring replacement.**	**$200,000**	S	WU	$0	**$200,000**	$0	$0	$0	$0	**$200,000**
20-20	Replacement	**Saddle Dam Piezometer Installation**	**From 19-10 recommendations, piezometer installation is required to monitor the Saddle Dam to meet regulatory requirements**	**$125,000**	S	WU	$0	**$125,000**	$0	$0	$0	$0	**$125,000**
20-21	Replacement	**Reservoir Log Booms Replacement**	**Replace aging log booms and their anchoring systems in the Goldstream and Sooke water sheds.**	**$200,000**	**S**	**WU**	$0	**$200,000**	$0	$0	$0	$0	**$200,000**
Sub-Total Page 1 Dam Safety Program				$12,580,000			$4,030,000	$8,030,000	$2,270,000	$525,000	$375,000	$325,000	$11,525,000

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
21-03	New	Deception Dam - Dam Safety Review & Improvements	Conduct a dam safety review and some improvements for the Deception Dam.	$300,000	S	WU	$0	$100,000	$100,000	$100,000	$0	$0	$300,000
21-04	New	Saddle Dam - Dam Safety Review & Improvements	Conduct a dam safety review and some improvements for the Saddle Dam.	$200,000	S	WU	$0	$100,000	$100,000	$0	$0	$0	$200,000
23-01	New	Sooke Lake Dam Update Seismic Assessment	Conduct a seismic assessment of the Sooke Lake Dam as per the previous dam safety studies.	$150,000	E	WU	$0	$0	$0	$0	$150,000	$0	$150,000
Sub-Total Dam Safety Program				$13,230,000	$0	$0	$4,030,000	$8,230,000	$2,470,000	$625,000	$525,000	$325,000	$12,175,000
WATER QUALITY PROGRAM													
16-22	New	WQIS Database - Functional Enhancements	Upgrade of the water quality database with additional functionality.	$100,000	E	WU	$50,000	$50,000	$0	$0	$0	$0	$50,000
16-24	New	pH Corrosion Study	Study potential risks and solutions to corrosion due to low pH.	$50,000	E	WU	$20,000	$20,000	$0	$0	$0	$0	$20,000
18-09	New	WQ - Main Lab Renovation and Consolidation	Renovation of the water quality lab to consolidate services.	$135,000	E	WU	$35,000	$35,000	$0	$0	$0	$0	$35,000
18-26	New	Supply Management (Sooke Res) Modeling - Implications from Down-Scaled Climate Change Projections	Assess impacts of regional precipitation patterns on regional water supply.	$75,000	S	WU	$75,000	$75,000	$0	$0	$0	$0	$75,000
18-27	New	Paperless Data Management Project	Develop paperless system for records management	$15,000	S	WU	$7,000	$7,000	$0	$0	$0	$0	$7,000
19-26	New	Drinking Water Safety Plan for Sooke System	Expand the existing DWSP to include Sooke	$10,000	S	WU	$2,000	$2,000	$0	$0	$0	$0	$2,000
19-29	New	Leech River Water Quality Monitoring	Monitor water quality from the Leech River prior to utilizing it.	$100,000	S	WU	$25,000	$25,000	$0	$0	$0	$0	$25,000
20-03	New	Leech River Watershed - Implications for Supply Management	Develop program to evaluate water quality implications of adding Leech watershed to supply system.	$40,000	S	WU	$0	$40,000	$0	$0	$0	$0	$40,000
20-04	New	Sooke Lake HyDy Model Preparations	Installation of additional monitoring devices to inform model development	$100,000	S	WU	$0	$100,000	$0	$0	$0	$0	$100,000
20-31	**New**	**Lab Information Management System**	**Procure and implement a Lab Information Management System to manage the data being recorded**	**$200,000**	**S**	**WU**	$0	**$200,000**	$0	$0	$0	$0	$200,000
21-06	New	Sooke Lake HyDy Model Development	Build a 3D hydrodynamic model of Sooke Lake Res.	$100,000	S	WU	$0	$0	$100,000	$0	$0	$0	$100,000
Sub-Total Water Quality Program				$925,000			$214,000	$554,000	$100,000	$0	$0	$0	$654,000
ANNUAL PROVISIONAL CAPITAL ITEMS													
17-27	Replacement	Watershed Bridge and Culvert Replacement	Replacement of small culverts and bridges throughout the GVWSA.	$1,000,000	S	WU	$0	$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.	$915,000	E	WU	$0	$200,000	$155,000	$155,000	$155,000	**$155,000**	$820,000
17-29	Replacement	Water Supply Area Equipment Replacement	Hydrometeorological, fireweather, wildfire suppression and water quality equipment replacement.	**$750,000**	E	WU	$0	**$150,000**	**$150,000**	**$150,000**	**$150,000**	**$150,000**	$750,000
17-30	Replacement	Major Transmission Main Repairs	Emergency repairs to the transmission mains.	$850,000	S	WU	$0	$170,000	$170,000	$170,000	$170,000	**$170,000**	$850,000
17-31	Replacement	Transmission System Components Replacement	Replacement and repair of transmission components.	$400,000	S	WU	$0	$80,000	$80,000	$80,000	**$80,000**	**$80,000**	$400,000
17-32	Replacement	Revenue Meter Replacement	Replacement of minor equipment associated with revenue meter sites.	$230,000	E	WU	$0	$50,000	$50,000	$50,000	$50,000	**$30,000**	$230,000
17-33	Replacement	Disinfection Equipment Parts Replacement	Replacement of incidental equipment and parts associated with the disinfection system.	**$600,000**	E	WU	$0	**$120,000**	**$120,000**	**$120,000**	**$120,000**	**$120,000**	$600,000
17-34	Renewal	Supply System Computer Model Update	Annual update of the regional hydraulic model.	$50,000	S	WU	$0	$10,000	$10,000	$10,000	$10,000	**$10,000**	$50,000
19-16	Replacement	Dam Improvements	Items not covered by Dam Safety Reviews, but brought up in Dam Safety Inspections	$1,000,000	S	WU	$0	$200,000	$200,000	$200,000	$200,000	**$200,000**	$1,000,000
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	$500,000	E	WU	$0	$100,000	$100,000	$100,000	$100,000	**$100,000**	$500,000
Sub-Total for Annual Provisional Capital Items				$6,295,000			$0	$1,280,000	$1,235,000	$1,235,000	$1,235,000	$1,215,000	$6,200,000
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	$0	$367,000	$185,000	$150,000	$50,000	$250,000	$1,002,000
20-22	**New**	**Vehicle for the Dam Safety Program**	**New pick up**	**$35,000**	**V**	**WU**	$0	**$35,000**	$0	$0	$0	$0	$35,000
20-23	**New**	**Vehicle for the CSE Support Program**	**New Transit Van**	**$45,000**	**V**	**WU**	$0	**$45,000**	$0	$0	$0	$0	$45,000
20-24	**New**	**Vehicle for the Asset Integration Program**	**New pick up**	**$35,000**	**V**	**WU**	$0	**$35,000**	$0	$0	$0	$0	$35,000
20-25	**New**	**Compactor for Watershed Road Program**	**New compactor attachment/trailer for road maintenance**	**$60,000**	**E**	**WU**	$0	**$60,000**	$0	$0	$0	$0	$60,000
20-26	**New**	**Trailer for Watershed Protection**	**New trailer for the Goldstream Zodiac Boat**	**$10,000**	**V**	**WU**	$0	**$10,000**	$0	$0	$0	$0	$10,000
Sub-Total for Customer and Technical Services				$2,680,000			$0	$552,000	$185,000	$150,000	$50,000	$250,000	$1,187,000
			GRAND TOTAL	**$87,996,000**			**$6,274,000**	**$19,691,000**	**$11,295,000**	**$15,945,000**	**$8,760,000**	**$19,770,000**	**$75,461,000**

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM
2020 & Forecast 2021 to 2024

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

Proj. No.
The first two digits represent first year the project was in the capital plan.

Capital Exp. 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

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

Funding Source Codes (con't)
Res = Reserve Fund
STLoan = Short Term Loans
WU - Water Utility

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

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
This column represents the total project budget not only within the 5-year window.

FIVE YEAR FINANCIAL PLAN

Proj. No.	Capital Exp.Type	Capital Project Title	Capital Project Description	Total Project Budget	Asset Class	Funding Source	Carry Forward from 2019	2020	2021	2022	2023	2024	5 - Year Total
SYSTEM REPLACEMENT AND UPGRADES THAT BENEFIT REGIONAL WATER SUPPLY AND JUAN DE FUCA DISTRIBUTION													$0
16-01	Renewal	Upgrades to Buildings at 479 Island Highway	Maintenance and changes to buildings and office layouts.	$510,000	B	WU	$70,000	$190,000	$80,000	$80,000	$80,000	**$80,000**	$510,000
17-01	Renewal	Voice Radio Upgrade	Replacement of end of life voice radio system repeaters, office, vehicle and handheld radios.	**$640,000**	E	WU	$270,000	$270,000	$290,000	$0	$0	$0	$560,000
19-02	New	Island Highway Cell Phone Coverage	Increase cell phone coverage within 479 Island Highway, IWS offices.	$70,000	E	WU	$70,000	$70,000	$0	$0	$0	$0	$70,000
19-04	New	Legistar - Granicus Implementation	Implement Legistar - Granicus software at IWS.	$30,000	E	WU	$20,000	$20,000	$0	$0	$0	$0	$20,000
20-01	**New**	**Portable Pump Station**	**Portable pump station to provide backup when a pump station is offline, in construction or to bypass a section of pipe.**	**$500,000**	**E**	**WU**	**$0**	**$500,000**	**$0**	**$0**	**$0**	**$0**	**$500,000**
Sub-Total System Replacement and Upgrades That Benefit Regional Water Supply and Juan de Fuca Distribution				$1,750,000			$430,000	$1,050,000	$370,000	$80,000	$80,000	$80,000	$1,660,000
ANNUAL PROVISIONAL CAPITAL ITEMS													
16-04	New	Implementation of a Fleet Management Solution (software)	Development and implementation of a fleet management system.	$150,000	E	WU	$90,000	$90,000	$0	$0	$0	$0	$90,000
17-02	Replacement	SCADA Hardware Upgrading and Replacement	Upgrade and replacement of SCADA equipment as required.	$210,000	E	WU	$0	$35,000	$35,000	$35,000	$35,000	**$35,000**	$175,000
17-03	Replacement	Office Equipment, Upgrades and Replacements	Upgrade and replacement of office equipment as required.	$270,000	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.	$1,190,000	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.	$215,000	E	WU	$0	$20,000	$20,000	$20,000	$20,000	**$20,000**	$100,000
17-06	Replacement	Small Equipment & Tool Replacement (Water Operations)	Replacement of tools and small equipment for Water Operations as required.	$440,000	E	WU	$0	$80,000	$80,000	$80,000	$80,000	**$80,000**	$400,000
17-07	Replacement	Small Equipment & Tool Replacement (Corporate Fleet)	Replacement of tools and small equipment for Fleet as required.	$100,000	E	wu	$0	$15,000	$15,000	$15,000	$15,000	**$15,000**	$75,000
Sub-Total for Annual Provisional Capital Items				$ 2,575,000			$ 90,000	$ 455,000	$ 365,000	$ 365,000	$ 365,000	$ 365,000	$1,915,000
			GRAND TOTAL	**$4,325,000**			**$520,000**	**$1,505,000**	**$735,000**	**$445,000**	**$445,000**	**$445,000**	**$3,575,000**

Service: 2.670 **Regional Water Supply**

Proj. No.	17-01	**Capital Project Title**	Repair of Historic Goldstream Powerhouse Building	**Capital Project Description**	The Goldstream Powerhouse is an historic building near the Great Trail in the GVWSA. Repairs and a plan to conserve the building are to be developed.
Asset Class	Buildings	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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. Funds are required in 2019 ($10,000) to repair a smaller hole in the masonry on the south side. Funds to repair the roof envelope ($50,000) are planned for 2023. Grant funding opportunities to conserve the building and its history will continue to be sought.*

Proj. No.	17-04	**Capital Project Title**	Water Supply Area - Fish Stream Assessments	**Capital Project Description**	Inventory and assessment of fish, fish habitat, and stream channel stability in priority streams in the GVWSA.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.***

Proj. No.	18-01	**Capital Project Title**	Post-Wildfire Debris Flow Modelling	**Capital Project Description**	Site specific modelling of the potential impact to Sooke Lake Reservoir and infrastructure of a significant wildfire in the Sooke WSA.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *Erosion and debris flows from areas burned by wildfire in the Greater Victoria Water Supply Area could pose a major threat to the quality of water in source reservoirs. A pilot project was completed in 2014-15 to model post-wildfire erosion and debris flow for two drainages close to the intake of Sooke Lake Reservoir. The results were then used to develop an emergency rehabilitation plan for these two drainages. A larger modelling project for all areas draining directly into Sooke Lake Reservoir is proposed for 2019 in order to develop further site specific emergency rehabilitation plans.*

Proj. No.	18-10	**Capital Project Title**	Species-at-Risk Wildlife Habitat	**Capital Project Description**	An assessment (office and field) and plan for managing wildlife habitat, in particular species-at-risk habitat, in the GVWSA.
Asset Class	Land	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Service: 2.670 **Regional Water Supply**

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.*				
Proj. No.	19-07	**Capital Project Title**	Leech WSA Lakes/Tributaries Assessment	**Capital Project Description**	An assessment of the physical, chemical and biological parameters of the Leech WSA source waterbodies.
Asset Class	Land	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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). The funding for this project has been moved forward to balance staff resources.*				
Proj. No.	20-05	**Capital Project Title**	Leech WSA Terrestrial Ecosystem Mapping & Wetland Classification/Mapping	**Capital Project Description**	Detailed mapping of Leech WSA terrestrial ecosystems and wetlands from air photo interpretation.
Asset Class	Land	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.***				
Proj. No.	23-02	**Capital Project Title**	GVWSA LiDAR Mapping	**Capital Project Description**	To renew LiDAR mapping for the GVWSA.
Asset Class	Land	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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).*				
Proj. No.	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.**
Asset Class	**Land**	**Board Priority Area**	**Other**	**Corporate Priority Area**	**Drinking Water**
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

Proj. No.	20-28	**Capital Project Title**	**GVWSA Forest Resilience - Assessments of forest health and resilience**	**Capital Project Description**	**Field assesments to better understand current forest health and resilience.**
Asset Class	**Land**	**Board Priority Area**	**Other**	**Corporate Priority Area**	**Drinking Water**
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.***				
Proj. No.	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**
Asset Class	**Land**	**Board Priority Area**	**Other**	**Corporate Priority Area**	**Drinking Water**
Project Rationale	***Assessment and/or studies to determine and mitigate impacts from mining activities in the Leech Water Supply Area.***				
Proj. No.	20-03	**Capital Project Title**	**GVWSA Land Exchange/Acquisition**	**Capital Project Description**	**Land surveys, appraisals to support decisions regarding land excange to increase catchment area or buffer water supply area lands.**
Asset Class	**Land**	**Board Priority Area**	**Other**	**Corporate Priority Area**	**Drinking Water**
Project Rationale	***There are opportunities to increase the catchment area 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

Proj. No.	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.
Asset Class	Land	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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). Annual funding has been increased during this 5 year plan from $150,000 to $200,000 per year in order to match the overall project budget of $5,756,000 in the last 7 years of the project.***				

Proj. No.	16-01	**Capital Project Title**	Replace Gatehouse at Goldstream Entrance	**Capital Project Description**	The security/first aid gatehouse is past end of life and is to be replaced with more effective security infrastructure.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Enhanced security is required at the Goldstream entrance to the Water Supply Area. The existing gatehouse/first aid trailer is unsuitable and located inside the secured area. An in/out road with upgraded autogates is also being established.* ***Current cost estimates indicate additional funding is needed in 2020 ($50,000) to meet building functionality needs and the current construction market.***				

Proj. No.	17-09	**Capital Project Title**	Goldstream Gate Upgrade	**Capital Project Description**	The main entrance gate in Goldstream is past end of life and requires replacment with lifting in/out gates.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The security autogates are past end of life and are to be replaced with more effective security infrastructure. This project has been delayed in order to coordinate with construction of a replacement Gatehouse at the Goldstream entrance (16-01).*				

Proj. No.	16-06	**Capital Project Title**	Goldstream IWS Office	**Capital Project Description**	Renewal of Water Quality field office, lab and equipment and supplies storage and Watershed Protection office, training,
Asset Class	Buildings	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Watershed Protection staff (26 FTE and 6 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 ATCO trailers were considered temporary office space since their implementation over 10 years ago. The trailers are old, prone to leaks and a concern for mold. Water Quality field staff are located in another converted facility in the Goldstream area. The separation of staff between various Goldstream facilities and the View Royal location causes inefficiencies and organizational difficulties. In addition, there are insufficient facilities for training, equipment storage, emergency management and public education. An initial investment in 2016 was used to develop a needs assessment for the building and surrounding Goldstream entrance area. Funds in 2020 will be used to develop a design with building and site construction planned for 2021 and 2022.*				

Service: 2.670 Regional Water Supply

Proj. No.	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.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	17-06	**Capital Project Title**	Weeks Lake Area Environmental Assessment and Remediation	**Capital Project Description**	Assessment and remediation of the Weeks Lake gravel pit (lead from firearms) and Weeks Lake (metals and hydrocarbons from dumping).
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *Weeks Lake and the surrounding area are suspected to be contaminated by historic use of the area for unregulated public activities. An assessment for lead contamination in the Weeks Lake gravel pit from firearms use began in 2017 with remediation works planned for 2019.* ***The assessment completed in 2018 found surficial soil contamination in the top 15 cm throughout most of the northern half of the gravel pit. A remediation plan (2019) estimated a cost of $250,000 to remove and dispose of the contaminated soil (classed as hazardous waste). Additional funding of $145,000 has been added to the original 2020 request to adequately fund the gravel pit remediation work. Funds in 2021 are estimated for further sampling and possible remediation of Weeks Lake which was found to have minor contamination in the lake sediment.***

Proj. No.	17-07	**Capital Project Title**	**Weeks Main Road Upgrade**	**Capital Project Description**	**Road upgrade and new construction to re-route Weeks Main and bring the road to regulatory standard.**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *This 500 m section at the north end of Weeks Main is prone to flooding in two areas and the streams are fish bearing. The road will be re-routed and upgraded to avoid an alluvial fan with multiple braided streams and a new bridge installed to cross the fish bearing stream further upslope.* ***The bridge portion of the project will be funded under the Leech Watershed Restoration project (09-01).***

Service: 2.670 **Regional Water Supply**

Proj. No.	18-05	**Capital Project Title**	GVWSA Forest Fuel Management	**Capital Project Description**	Implementation of forest fuel management in strategic locations for wildfire risk management in the GVWSA.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	19-02	**Capital Project Title**	Whiskey Creek Bridge Replacement	**Capital Project Description**	Replacement of the existing undersized bridge with a longer and higher concrete structure.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	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.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.***

Proj. No.	20-01	**Capital Project Title**	Kapoor Main Mile 1 Bridge and Asphalt Upgrade	**Capital Project Description**	Replacement of the existing undersized culvert with a large bridge as well as nearby asphalt repair or replacement.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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 2020 to 2021 to allow higher priorities to be addressed first.***

Service: 2.670 **Regional Water Supply**

Proj. No.	21-01	**Capital Project Title**	31N Bridge to Replace Undersized Culvert	**Capital Project Description**	Replacement of the existing undersized and failing culvert with a bridge structure.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The undersized and failing culvert on the 31N Road in the Goldstream Water Supply Area requires replacement with a bridge structure.*				

Proj. No.	18-11	**Capital Project Title**	Large Equipment Storage	**Capital Project Description**	Two additional bays are to be added to the existing fire/spill equipment warehouse at the FOC to shelter large water supply infrastructure equipment.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Increased protected storage is required for IWS equipment at the Field Operations Centre in Goldstream. The existing Fire and Spill Equipment Warehouse and adjacent covered storage is sound and fully utilised. Funds are for additional covered storage bays to accommodate additional large IWS equipment. The upgrade was recommended in the Building Needs Assessment for the Watershed Protection Operations Centre (16-06).* ***Additional funds of $100,000 are requested in 2020 to supplement the original project amount given bids received on a 2019 tender for the project.***				

Proj. No.	20-29	**Capital Project Title**	**Gravel Crushing 14G and 10S Quarry (Sooke and Goldstream WSAs)**	**Capital Project Description**	**Production of gravel at existing quarries in Sooke and Goldstream WSAs.**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	***The current supply of 19 mm road surfacing gravel needs to be replenished. A five year supply is planned to be produced at the 14G5 quarry, as well as crushing existing rough shot rock at the 10S quarry for road surfacing.***				

Proj. No.	20-30	**Capital Project Title**	**Surprise Creek Culvert Replacement (Sooke WSA)**	**Capital Project Description**	**Undersized bridge replacement**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	***This undersized culvert is located on Leechtown Main, an important access route in the watershed. The culvert will be replaced with a larger structure.***				

Service: 2.670 **Regional Water Supply**

Proj. No.	20-09	**Capital Project Title**	**Small workboat for Goldstream WSA**	**Capital Project Description**	**Small boat dedicated to the Goldstream WSA for wildlife biology work.**
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	***With development of a Biosecurity Stratey for the GVWSA, it is recommended that boats and water sampling equipment be dedicated to specific water supply areas to avoid the potential for spreading aquatic species between water supply systems. A larger aluminum workboat is already available for the Goldstream WSA, but given the need for shallow shoreline biology work as well as the need to be able to respond to emergencies in shallow water, a smaller inflatable workboat is required. A trailer to transport the boat is being requested by CRD Fleet Services.***				
Proj. No.	22-02	**Capital Project Title**	**Muckpile Bridge Supply and Install (Deception watershed)**	**Capital Project Description**	**Replacement of undersized culverts with a bridge which will allow for fish and western toad passage.**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	***Replacement of undersized culverts with a concrete deck L100 bridge which will alo improve fish passage and western toad migration.***				
Proj. No.	23-04	**Capital Project Title**	**17S/Sooke Main Bridge Replacement (Sooke WSA)**	**Capital Project Description**	**Undersized bridge replacement**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.***				
Proj. No.	23-03	**Capital Project Title**	**Air curtain burner for fuel management**	**Capital Project Description**	**A transportable burner that provides more effective and rapid burning of woody debris with reduced smoke emissions.**
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	***In order to prevent forest fuels from accumulating from clearing and forest fuel management projects, the woody debris is chipped and dispersed as possible, and the remainder is piled and burned. Opening burning of woody debris is restricted by the Open Burning Smoke Control Regulation, which restricts the days and conditions under which woody debris can be burned in order to reduce the amount and dispersion of smoke generated, especially near urban areas. This limits the timing of burning in the GVWSA to few opportunities and may not allow all required burning to be completed in a given year. An air curtain burner can be transported to a site, fed with woody debris, and very little if any smoke is generated as the fuel is burned quickly by feeding it with air and an "air curtain" contains the smoke within the burner.***				

Service: 2.670 **Regional Water Supply**

Proj. No.	24-01	**Capital Project Title**	**6M/Judge Creek Culvert Replacement (Sooke WSA)**	**Capital Project Description**	**Undersized bridge replacement**
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.***

Proj. No.	16-07	**Capital Project Title**	Asset Reconciliation / Transfer Agreements	**Capital Project Description**	Identify, confirm and reconcile supply system assets ownership.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The supply system has evolved over the past century and has been developed under different ownership. This item will identify specific water system assets and assign ownership, under agreement, between the CRD and the wholesale customers including the finalizing the agreement with the District of Saanich, and initiating agreements with the City of Victoria and the District of Oak Bay.*

Proj. No.	16-10	**Capital Project Title**	Post Disaster Emergency Water Supply	**Capital Project Description**	Identify and procure emergency systems for post disaster preparedeness.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Service: 2.670 **Regional Water Supply**

Proj. No.	17-13	**Capital Project Title**	Strategic Asset Management Plan	**Capital Project Description**	Development of a plan to inform future areas of study and highlight critical infrastructure improvements.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	17-14	**Capital Project Title**	Hydraulic Actuators Assessment/Replace	**Capital Project Description**	Assessment and replacement of hydraulic actuators that are key to operation of the water supply system.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *There are 16 hydraulic actuators that control valves and gates in the watershed that are nearing the end of their service life (installed in 1977). These actuators need replacement and evaluation of the existing actuators is required to determine optimum actuator technology, replacement strategy, associated mitigative improvements for each location. The 2017 work will result in an actuator replacement program with a defined schedule, scope and costs. The 2018 – 5 year Capital Budget has been adjusted to reflect initial findings in the 2017 assessment.*

Proj. No.	19-04	**Capital Project Title**	Seismic Assessment of Critical Facilities	**Capital Project Description**	Identified as a priority from Strategic Plan, a seismic assessment of critical facilities wil be undertaken.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *A Water Supply System Strategic Plan update occurred in 2017. Seismically assessing critical facilities and ensuring water supply is resilient has been highlighted as a priority to ensure a functioning water supply system after a seismic event. With the exception of dams, all critical facilities including the Japan Gulch and Sooke River Road Disinfection facility will be seismically assessed in a desktop study and confirmed through field inspections to determine if they meet current post-disaster requirements. Additionally, a feasibility study of critical infrastructure will identify and assess whether plans, procedures and necessary infrastructure are in place in the event key infrastructure fails. The results of the assessment will inform future investigation and capital improvements if required. Funds are required to retain a consulant to seismically asses critical facilities within the water supply system.*

Service: 2.670 **Regional Water Supply**

Proj. No.	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
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	19-28	**Capital Project Title**	Goldstream System Hydraulic Analysis	**Capital Project Description**	Analysis and documentation of hydraulics of the Goldstream system.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*A study to quantify the volume and available flow rate from the Goldstream system is required to qualify the operational conditions in the event it is used as an emergency backup for the Sooke Lake system.*				

Proj. No.	20-02	**Capital Project Title**	Supply System Resilience Feasibility Stuc	**Capital Project Description**	Identified as a priority from the Strategic Plan, a study of water supply system's resilience and high level measures to make important assets resilient will be undertaken
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The RWSC currently has one primary water supply and one backup water supply with single feeds from each system. Funding is required to assess the water supply system's resilience and outline high level measures to make important assets resilient.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	20-07	**Capital Project Title**	Deep Northern Intake & Transmission Pip	**Capital Project Description**	A technical and business case analysis will be carried out with possible expansion and filtration study upstream of the head tank
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*A technical and business case analysis will be carried out on an additional intake from the deeper, northern area of the Sooke Lake Reservoir. Additionally, a filtration siting study will be undertaken due to the inconnectedness of the two works.*				

Proj. No.	20-08	**Capital Project Title**	Regional Water DCC Program	**Capital Project Description**	Design of a Regional DCC Program
Asset Class	Study	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	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.
Asset Class	Study	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	20-11	**Capital Project Title**	Develop Strategic Plan	**Capital Project Description**	Develop a long term strategic plan to anticipate water demand, water treatment, and future siting of facilities.
Asset Class	Study	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				
Proj. No.	21-05	**Capital Project Title**	Level of Service Agreement	**Capital Project Description**	From #19-15 & #20-11, develop level-of-service agreements for participating municipalities to address hydraulic capacity of infrastructure.
Asset Class	Study	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				
Proj. No.	15-03	**Capital Project Title**	Sooke Intake Screens Condition Assessn	**Capital Project Description**	Renewal of the aging Sooke Intake Tower and equipment to maintain water supply.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The Intake Tower is an integral part of the Regional Water System and is the primary raw water feed to Japan Gulch and Sooke River Road Water Treatment Plants. Currently there is no redundancy within the structure in the event of mechanical failure. In 2016 Stantec Consulting Ltd. completed an assessment of the overall structure including major components consisting of: Travelling Screen, Sluice Gates/Actuators, and Electrical System. The assessment identified required remedial works to the major components that will be carried out over 2017 and 2018. In 2016 a Seismic Structural Analysis will be completed to assess the vulnerability of this structure and identify options of upgrades or replacement of the structure to meet current seismic codes. In 2017 Stantec had provided renewal and replacement options for the Intake Tower, additional funds are required to renew the Intake Tower to ensure proper functioning screens, sluice gates/actuators and electrical system.*				
Proj. No.	17-23	**Capital Project Title**	Japan Gulch Emergency Notification Syst	**Capital Project Description**	Design and implementation of an emergency notification system.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*An emergency notification system is required at the Japan Gulch Disinfection Facility to meet regulatory compliance related to gas release and other hazards (e.g. wildfire). The need was evaluated and solution described in detail in the Gas Release Risk Assessment and Communication Plan; Japan Gulch Disinfection Facility; June 30, 2016. This work will include installation of a new siren system (and associated controls) at the plant and fund CRD assistance in the development of an emergency mass notification system. Additional funds are required to implement the emergency notification system.* ***This work has been deferred so that it may be carried out with a possible notification system for dam safety.***				

Service: 2.670 **Regional Water Supply**

Proj. No.	17-24	**Capital Project Title**	SCADA Equipment Replacement Prograı	**Capital Project Description**	Planned replacement of SCADA equipment as recommended from the SCADA Master Plan.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *A study of the existing SCADA equipment was completed by Stantec Consulting and they proposed short-term and long-term SCADA equipment replacements. It is proposed to replace the equipment based on priority and defined by deterioration and/or age. Funding is required to upgrade the following equipment over the next 10 years:2017 - Watershed SCADA sites, upgrade of PCS & Communications; 2020 - Replacement of some bulk meter SCADA sites; 2021 - Replacement of some bulk meter SCADA sites, watershed SCADA sites and upgrade of PCS & Communications.*

Proj. No.	18-07	**Capital Project Title**	JGTP - UV Reactor Lines 9 & 10 Installat	**Capital Project Description**	Installation of additional UV reactors.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	18-08	**Capital Project Title**	Bulk Supply Meter Replacement Program	**Capital Project Description**	Planned replacement of aging bulk meter replacement based upon a condition assessment and water audit.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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. In 2017, KWL completed a bulk water system audit and recommended that the Admirals and Cecelia sites are priority for 2017 and 2018, in 2019 Layritz and Maplewood, in 2020 Blue Ridge, Alderley and Holland, in 2022 St Giles be replaced. Funding is required to replace the flow meter and appurtenances.*

Proj. No.	18-15	**Capital Project Title**	Cathodic Protection Program	**Capital Project Description**	Study deficiencies in the current material protection and implement recommendations.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Service: 2.670 **Regional Water Supply**

Proj. No.	18-17	**Capital Project Title**	Sooke Spillway Gate Power	**Capital Project Description**	Addition of standby power to for the Sooke Spillway gates.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *This item is to provide emergency power to the Sooke Spillway Gates so that they can be operated during a power failure. This item was identified during an assessment and predesign of the Sooke Intake, this work is required to ensure proper function of the spillway gates during a power outage. Funding is required to retain a consultant to conducted detailed design and for procurement of a standby generator for the spillway gates.*

Proj. No.	18-18	**Capital Project Title**	Main No.3 Segment Replacement	**Capital Project Description**	Replacement of segments of Main No. 3 based upon previous studies.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	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.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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****.*

Proj. No.	19-23	**Capital Project Title**	Critical Spare Equipment Storage & Pipe Yard	**Capital Project Description**	Plan, design and construct a critical equipment storage building.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *Additional and accessible storage is required at the pipe yard for critical spare equipment such as repair bands and clamps. Funds are required to pland, design and construct an equipment storage building accessible by loading vehicles.*

Service: 2.670 **Regional Water Supply**

Proj. No.	20-12	**Capital Project Title**	Valve Chamber Upgrades	**Capital Project Description**	Replace failing valves and appurtenances along the RWS supply system.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*There are numerous valve chambers within the RWSC in various states of condition. Operation of the valves is critical to supply system. Funding is required to replace failed valves, flushes, water proof chambers, replace rungs, … throughout the RWS system.*				

Proj. No.	20-13	**Capital Project Title**	Electrical Isolation Audit	**Capital Project Description**	Inspection audit of facilities to ensure that there is sufficient electrical separation and isolation for safety.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The RWSC has numerous facilities with electrical and mechanical equipment within the same room. Funds are required to conduct and inspection of the facilities and ensure there is sufficient separation to reduce the risk of failure and for safety.*				

Proj. No.	20-14	**Capital Project Title**	Parkdale Meter Decommission and Demolition	**Capital Project Description**	The Parkdale meter facility is no longer in use and has been identified as requiring decommissioning and demolition.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Funding is required to decommission and demolition the Parkdale meter facility that is no longer in operation and no longer required.*				

Proj. No.	20-15	**Capital Project Title**	Cook & Somerset Meter Station Backflow Installation	**Capital Project Description**	To isolate backflow from the City of Victoria's distribution system into the RWS supply system backflow improvements are required at two facilities
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*An assessment in 2018 highlighted that water from the City of Victoria's water system was backflowing in the RWSC system at the Cook and Somerset meter stations. Funding is required to install backflow preventors.*				

Service: 2.670 Regional Water Supply

Proj. No.	20-16	**Capital Project Title**	St Giles & Cecelia Meter Replacements	**Capital Project Description**	Replacement of system monitoring and billing meters as well as their enclosures.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	20-17	**Capital Project Title**	Decommission Smith Hill Site	**Capital Project Description**	Plan and decommission the abandoned Smith Hill reservoir site.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	20-18	**Capital Project Title**	Goldstream Main #4 Replacement	**Capital Project Description**	Plan and replacement of the concrete pipe portion of Main #4.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The Main #4 transmission main going through Goldstream Ave in Langford is concrete pipe and should be replaced. Funds are required to plan a new alignment and logistics of replacement in 2020 with actual replacement starting in 2024.*				

Proj. No.	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.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	22-01	**Capital Project Title**	Kapoor Tunnel Inspection	**Capital Project Description**	Condition Inspection of the Kapoor Tunnel
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Funds are required to complete an inspection of the Kapoor Tunnel and inspect the 2019 repair works.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	16-16	**Capital Project Title**	Goldstream Dams Safety Review & Impr	**Capital Project Description**	Conduct a dam safety review and some improvements for the Goldstream dams.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The Goldstream Dams Dam Safety Review was initiated in 2015 and delivered in 2016 ($80k) and the study provided recommendations for dam safety improvements at the suite of 11 dams in the Goldstream Watershed. Upcoming studies and capital work to be completed includes:*

i. Dam Breach Assessment and Inundation Mapping ($175k) – 2018
ii. Goldstream Dam – Install Riprap at Spillway ($10k) - 2018
iii. Survey work ($15k) – 2018
iv. Japan Gulch Spillway Hydraulic Assessment ($25k) – 2019
v. Update Seismic Hazard ($50k) – 2019
vi. Seismic Deformation Analysis ($75k) – 2019
vii. Evaluate Core and Shell Materials – ($100k) - 2020
viii. Lubbe Dam #1 – low level outlet inspection ($10k) – 2021
ix. Lubbe Dams #2 and #3 – Install Seepage Weir at each dam ($50k) – 2021
x. Lubbe Dam #2 – Install Riprap at upstream face of dam ($15k) - 2021

Proj. No.	16-17	**Capital Project Title**	Butchart Dam No. 5 Remediation	**Capital Project Description**	Replacement of Butchart Dam No. 5
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	17-25	**Capital Project Title**	Sooke Dam Safety Review and Implicatic	**Capital Project Description**	Conduct a dam safety review and some improvements for the Sooke Dam.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The 2016 Dam Safety Review Audit was completed in 2016 and provided a list of recommended improvements. Upcoming capital work to be completed includes:*

1. Repairs to spillway gates ($200k) – 2018
2. Further testing of spillway underdrainage system ($100k) – 2018
3. Review video inspection data for Low Level Outlet Pipes ($10k) - 2018
4. Upgrade roadside ditches near left abutment and add fill to abutment ($100k) - 2019
5. Failure Modes Analysis ($120k) – 2019
6. Emergency Drawdown Assessment ($100k) - 2019
7. Risk Analysis and Assessment ($100k) 2020
8. Freeboard Analysis – wind and wave run-up assessment ($20k) – 2020
9. Reservoir Slope Stability Assessment ($200k) – 2021
10. Structural Assessment of Intake Tower Footings during rapid reservoir drawdown scenario ($100k) - 2021

Service: 2.670 **Regional Water Supply**

Proj. No.	18-19	**Capital Project Title**	Sooke Lake Dam - Instrumentation Syste	**Capital Project Description**	Complete instrumentation system improvements for the Sooke Dam.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *Development of a more robust surveillance system suitable for an "extreme" consequence classification dam that includes new instrumentation, and will allow for improved observation and timely analysis of critical dam safety related data. This was identified as a recommended action from the 2016 Dam Safety Review Audit. Results of planning study (#14-04) will inform the phasing priorities for the capital works. Initial planned phased are to be confirmed and currently consist of:*

1. *Phase 1 – Detailed design and installation of new vibrating wire piezometers ($600k) – 2018/2019*
2. *Phase 2 – Installation of new seepage weirs ($200k) - 2019*
3. *Phase 3 – SCADA upgrades ($200k) - 2020*
4. *Phase 4 – New data processing and training ($100k) - 2021*
5. *Phase 5 – Install Seismograph ($150k) - 2022*

Proj. No.	18-20	**Capital Project Title**	Sooke Lake Dam - Breach Risk Reductio	**Capital Project Description**	Implement measures to reduce Sooke Lake Dam breach.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *A dam breach assessment and inundation mapping project is being completed in 2017 by an engineering consultant. The study will include assessment of the dam consequence classification. Recommendations from the study are anticipated to include structural and non-structural risk mitigation measures to lower risks associated with an emergency dam breach. Mitigation measures are anticipated to be implemented in future years and may include:*

1. *Stockpile of riprap near dam site ($200k) - 2018*
2. *Installation of early warning systems and structural improvements ($200k) - 2019*

Proj. No.	19-07	**Capital Project Title**	Integrate Dam Performance and Hydromet to SCADA	**Capital Project Description**	Integrate the dam performance piezometers and weirs and Hydromet stations to report to IO through the existing SCADA system - refer to MMC notes and relates to 17-24
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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

Proj. No.	19-08	**Capital Project Title**	Charters Dam Decommissioning	**Capital Project Description**	Charters Dam has been retired from drinking water service, no other interested owners, plan to decommission - refer to MMc notes of Jan. 11, 2018 meeting with PES, relates to 21-02
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The Charters Dam has been retired from drinking water service with no other interested owners. Funds are required to plan and implement decommissioning of the dam prior to the next legislated Dam Safety Review.*

Service: 2.670 **Regional Water Supply**

Proj. No.	19-09	**Capital Project Title**	Cabin Pond Dams Decommissioning	**Capital Project Description**	The Cabin Pond Dams (x2) have been retired from drinking water service, no other interested owners, plan to decommission - refer to MMc notes of Jan. 11, 2018 meeting with PES
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	19-12	**Capital Project Title**	Goldstream Dams Instrumentation Improvements	**Capital Project Description**	Conduct instrumentation improvements based upon Thurber's 2018 study results.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	19-13	**Capital Project Title**	HydroMet Station Upgrades	**Capital Project Description**	IE shares hydromet assets with WP, the equipment is getting older and will need to be replaced (does not include pending SCADA effort)
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Aging Hydromet 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.*				

Proj. No.	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 indentified as requiring replacement.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Through dam safety inspections and routine operations, the Goldstream and Butchart high level outlet valves have been identified as requiring replacement. Funds are required to design and replace the valves.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	20-20	**Capital Project Title**	Saddle Dam Piezometer Installation	**Capital Project Description**	From 19-10 recommendations, piezometer installation is required to monitor the Saddle Dam to meet regulatory requirements
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*From the 2019 Capital Project, #19-10, recommendations were made for piezometer installation at Saddle Dam to meet regulatory requirements. Funds are required to design and implement piezometer installation.*				

Proj. No.	20-21	**Capital Project Title**	Reservoir Log Booms Replacement	**Capital Project Description**	Replace aging log booms and their anchoring systems in the Goldstream and Sooke water sheds.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*There are numerous log booms used within the Goldstream and Sooke water sheds to protect dams and facilities. Funds are required to design and replacement a number of them.*				

Proj. No.	21-03	**Capital Project Title**	Deception Dam - Dam Safety Review & I	**Capital Project Description**	Conduct a dam safety review and some improvements for the Deception Dam.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	21-04	**Capital Project Title**	Saddle Dam - Dam Safety Review & Imp	**Capital Project Description**	Conduct a dam safety review and some improvements for the Saddle Dam.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	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 studies.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	16-22	**Capital Project Title**	WQIS Database - Functional Enhanceme	**Capital Project Description**	Upgrade of the water quality database with additional functionality.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Funds are required to update the existing database with additional functionality to remain consistent with the data being recorded.*				

Proj. No.	16-24	**Capital Project Title**	pH Corrosion Study	**Capital Project Description**	Study potential risks and solutions to corrosion due to low pH.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*As part of the strategic planning process, a study of the potential risks and solutions to corrosion due to low pH is required.*				

Proj. No.	18-09	**Capital Project Title**	WQ - Main Lab Renovation and Consolid	**Capital Project Description**	Renovation of the water quality lab to consolidate services.
Asset Class	Buildings	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*The main lab will be redesigned, upgraded and consolidated with the SPWWTP lab within the existing main lab space. All laboratory services (drinking water, wastewater) and staff will be located within one accredited facility.*				

Proj. No.	18-26	**Capital Project Title**	Supply Management (Sooke Res) Modeli	**Capital Project Description**	Assess impacts of regional precipitation patterns on regional water supply.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is to study the implications of shifts in regional precipitation patterns associated with climate change will be applied to the regional water supply.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	18-27	**Capital Project Title**	Paperless Data Management Project	**Capital Project Description**	Develop paperless system for records management
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is for design and implementation of paperless laboratory for process improvement: reduction of paper work, increased efficiency, automating regulatory compliance, reducing cost and paper waste. The goal is to integrate with new EQIS system when it is live and using electronic records as official records.*				

Proj. No.	19-26	**Capital Project Title**	Drinking Water Safety Plan for Sooke System	**Capital Project Description**	Expand the existing DWSP to include Sooke
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*A drink water safety plan is required for the the Sooke system. Funds are required to expand the drinking water safety plan to include the Sooke system.*				

Proj. No.	19-29	**Capital Project Title**	Leech River Water Quality Monitoring	**Capital Project Description**	Monitor water quality from the Leech River prior to utilizing it.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*Prior to utilizing the Leech River as an additional drinking water source, water quality monitoring is required to determine if it is a suitable water source with the current treatment technology utilized. Funds are required to monitor and analyze the water quality from the Leech River.*				

Proj. No.	20-03	**Capital Project Title**	Leech River Watershed - Implications for	**Capital Project Description**	Develop program to evaluate water quality implications of adding Leech watershed to supply system.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is to develop and implement a research program to evaluate the implications of adding Leech Watershed water supply to existing Sooke Reservoir when future demand exceeds current supply*				

Proj. No.	20-04	**Capital Project Title**	Sooke Lake HyDy Model Preparations	**Capital Project Description**	Installation of additional monitoring devices to inform model development
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item for installation of additional monitoring devices and equipment to inform the hydy model development.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	20-31	**Capital Project Title**	Lab Information Management System	**Capital Project Description**	Procure and implement a Lab Information Management System to manage the data being recorded.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*To maintain the water quality lab certification and manage the data being recorded, funds are required to procure and implement a Lab Information Management System.*				

Proj. No.	21-06	**Capital Project Title**	Sooke Lake HyDy Model Development	**Capital Project Description**	Build a 3D hydrodynamic model of Sooke Lake Res.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is construct a hydrodynamic model of the Sooke Lake Reservoir to inform water quality and possible future capital works.*				

Proj. No.	17-27	**Capital Project Title**	Watershed Bridge and Culvert Replacement	**Capital Project Description**	Replacement of small culverts and bridges throughout the GVWSA.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	17-28	**Capital Project Title**	Watershed Security Infrastructure Upgrade and Replacement	**Capital Project Description**	New, upgrade and replacement of security infrastructure in the GVWSA.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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. An uplift in provisional funding requirement is foreseen in 2017 to upgrade and maintain Weeks Lake area security after the CRD Board decision to close the area to unauthorized public access; and, for additional fencing and/or gates to maintain a secure GVWSA with the implementation of the Sooke Hills Wilderness Trail (Trans Canada Trail).*				

Service: 2.670 Regional Water Supply

Proj. No.	17-29	**Capital Project Title**	Water Supply Area Equipment Replacement	**Capital Project Description**	Hydrometeorological, fireweather, wildfire suppression and water quality equipment replacement.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.***				
Proj. No.	17-30	**Capital Project Title**	Major Transmission Main Repairs	**Capital Project Description**	Kapoor Tunnel inspection and emergency repairs to the transmission mains.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				
Proj. No.	17-31	**Capital Project Title**	Transmission System Components Repla	**Capital Project Description**	Replacement and repair of transmission components.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				
Proj. No.	17-32	**Capital Project Title**	Revenue Meter Replacement	**Capital Project Description**	Replacement of minor equipment associated with revenue meter sites.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This is an annual allowance for minor equipment replacement or repair related to the revenue water meters, vaults and electrical and electronic equipment.*				

Service: 2.670 Regional Water Supply

Proj. No.	17-33	**Capital Project Title**	Disinfection Equipment Parts Replaceme	**Capital Project Description**	Replacement of incidental equipment and parts associated with the disinfection system.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	17-34	**Capital Project Title**	Supply System Computer Model Update	**Capital Project Description**	Annual update of the regional hydraulic model.
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is to allow for staff and consultant time each year to keep the hydraulic computer model current.*				

Proj. No.	19-16	**Capital Project Title**	Dam Improvements	**Capital Project Description**	Items not covered by Dam Safety Reviews, but brought up in Dam Safety Inspections
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	19-22	**Capital Project Title**	SCADA Repairs & Equipment Replaceme	**Capital Project Description**	Items not covered by the SCADA Replacement and SCADA Master Plan, but integral in maintaining the SCADA System
Asset Class	Engineered Structures	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*This item is to allow for unplanned SCADA repairs and equipment replacement not covered by the capital projects SCADA Replacement.*				

Service: 2.670 **Regional Water Supply**

Proj. No.	17-35	**Capital Project Title**	Vehicle & Equipment 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.
Asset Class	Vehicles	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
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.*				

Proj. No.	20-22	**Capital Project Title**	Vehicle for the Dam Safety Program	**Capital Project Description**	New pick up
Asset Class	Vehicles	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*An additional pick up is required for the dam safety program.*				

Proj. No.	20-23	**Capital Project Title**	Vehicle for the CSE Support Program	**Capital Project Description**	New Transit Van
Asset Class	Vehicles	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*A new Transit van is required to support the Confined Space Entry Support program.*				

Proj. No.	20-24	**Capital Project Title**	Vehicle for the Asset Integration Program	**Capital Project Description**	New pick up
Asset Class	Vehicles	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*An additional pick up is required for the Asset Integration Program to aid in operational support of the RWSC.*				

Proj. No.	20-25	**Capital Project Title**	Compactor for Watershed Road Program	**Capital Project Description**	New compactor attachment/trailer for road maintenance
Asset Class	Vehicles	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water
Project Rationale	*To maintain the gravel roads within the Sooke and Goldstream Watershed areas a new compactor attachment/trailer is required.*				

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

Proj. No.	16-01	**Capital Project Title**	Upgrades to Buildings at 479 Island Highway	**Capital Project Description**	Maintenance and changes to buildings and office layouts.
Asset Class	Buildings	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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 hte 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)

Proj. No.	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.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.

Mobile Radios: There are 100 Mobile radios in the system at present, all will need to be replaced.

Portable Radios: There are 90 Portable radios in the system at present all will need to be replaced.

Proj. No.	19-02	**Capital Project Title**	Island Highway Cell Phone Coverage	**Capital Project Description**	Increase cell phone coverage within 479 Island Highway, IWS offices.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale

Cell phone coverage within 479 Island Highway, IWS Offices, is very poor. Funds are required to increase cell phone coverage.

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

Proj. No.	19-04	**Capital Project Title**	Legistar -Granicus Implementation	**Capital Project Description**	Implement Legistar - Granicus software at IWS.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The Legistar - Granicus softwareis a corporate standard for legislative agendas, approvals and publishing. Funds are required to implement this software at IWS.*

Proj. No.	20-01	**Capital Project Title**	Portable Pump Station	**Capital Project Description**	Portable pump station to provide backup when a pump station is offiline, in construction or to bypass a section of pipe.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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 is required to maintain the level of service. Funds will be used in 2020 to design and procure a portable pump station.*

Proj. No.	16-04	**Capital Project Title**	Implementation of a Fleet Management Solution (software)	**Capital Project Description**	Development and implementation of a fleet management system.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *It is proposed that IT undertake an evaluation to determine if the present CRD ERP software meets the needs of Corporate Fleet Management. A fleet management needs document has been compiled and IT has been consulted on fleet requirements, the first indication is that the existing system are not able to meet the requirements in a cost effective manner. The next step is to provide funding for an in depth review by the CRD of the present systems' ability to provide a business solution for Fleet Management. This was a recommendation from the 2011 Fleet Management Working Group. Pending the outcome of the evaluation, provision has been made for the configuration changes of the SAP modules to meet the needs or the implementation of a fleet management software solution. Having an acceptable solution available will ensure that all aspects of fleet management is integrated to the existing systems, to do fleet planning and achieve regulatory compliance. At present not all data required for optimum fleet management is being captured and the systems that are in place are not linked together resulting in extensive staff hours to assemble reports, statistics and forecasts. i.e. provincial GHG reporting, vehicle replacement cycles, driver records etc.*

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

Proj. No.	17-02	**Capital Project Title**	SCADA Hardware Upgrading and Replacement	**Capital Project Description**	Upgrade and replacement of SCADA equipment as required.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

Project Rationale *The SCADA system needs continuous upgrading and repairs to keep it at present day standards. If the system is allowed to age, replacement components are more difficult to obtain, as well the utilization of the system becomes limited. Electronic components fail due to a variety of reasons and it is difficult to project their life expectancy. Provision includes budget for the replacement of radios that fail before the planned future upgrade of the radio system and an allowance for a study to evaluate the use of the Motorola versus the SCADA pack data handling devices. The outcome of this study will have an impact on the future radio replacements.*

Proj. No.	17-03	**Capital Project Title**	Office Equipment, Upgrades and Replacements	**Capital Project Description**	Upgrade and replacement of office equipment as required.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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

Proj. No.	17-04	**Capital Project Title**	Computer Upgrades	**Capital Project Description**	Annual upgrade and replacement program for computers, copiers, printers, network equipment as required.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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 $175,000 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

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

Proj. No.	17-05	**Capital Project Title**	Development of the Maintenance Management Systems	**Capital Project Description**	Develop maintenance management system.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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 IT related projects:-*
• Develop a dashboard to display information.
• Investigate standardization of SAP mobile platform.

Proj. No.	17-06	**Capital Project Title**	Small Equipment & Tool Replacement (Water Operations)	**Capital Project Description**	Replacement of tools and small equipment for Water Operations as required.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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.*

Proj. No.	17-07	**Capital Project Title**	Small Equipment & Tool Replacement (Corporate Fleet)	**Capital Project Description**	Replacement of tools and small equipment for Fleet as required.
Asset Class	Equipment	**Board Priority Area**	Other	**Corporate Priority Area**	Drinking Water

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
2020 - 2024 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

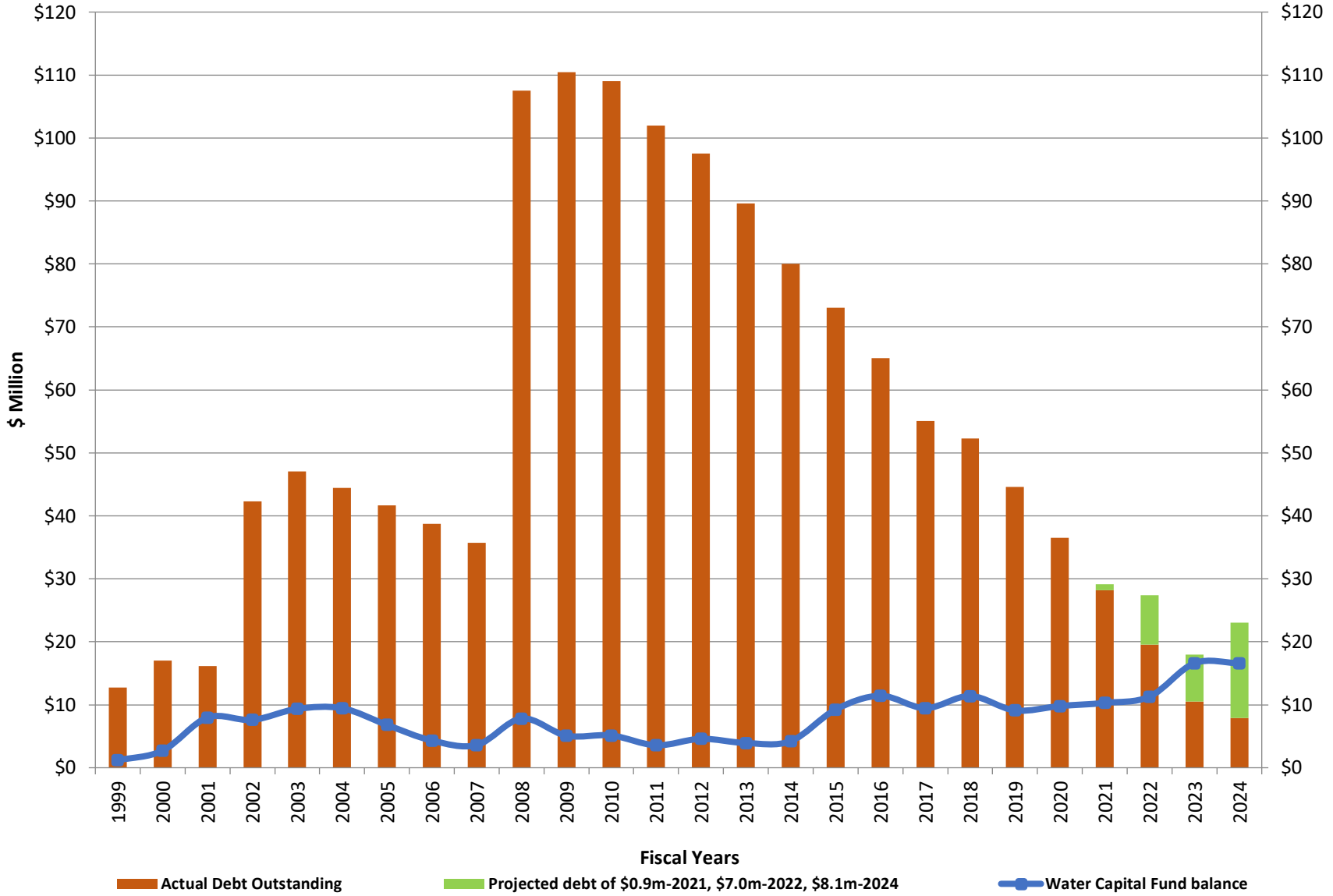
Reserve Fund: 2.670 Regional Water Supply Equipment Replacement Reserve (covered by CRD-ERF Bylaw)

Fund: 1022 Fund Center: 101454	**Actual**	**Estimate**	**Budget**				
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Beginning Balance	2,520,718	2,510,919	2,112,720	2,100,064	2,248,692	2,433,799	2,710,783
Equipment purchases (Based on Capital Plan)	(438,602)	(850,000)	(367,000)	(185,000)	(150,000)	(50,000)	(250,000)
Transfer from Operating Budget	268,920	274,301	299,294	305,878	312,607	319,484	326,513
Proceeds on disposals	109,210	127,500	55,050	27,750	22,500	7,500	37,500
Interest Income*	50,673	50,000					
Ending Balance $	**2,510,919**	**2,112,720**	**2,100,064**	**2,248,692**	**2,433,799**	**2,710,783**	**2,824,796**

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

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

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



REGIONAL WATER SUPPLY COMMISSION
Agricultural Water Rate Funding Comparisons 2011 - 2018

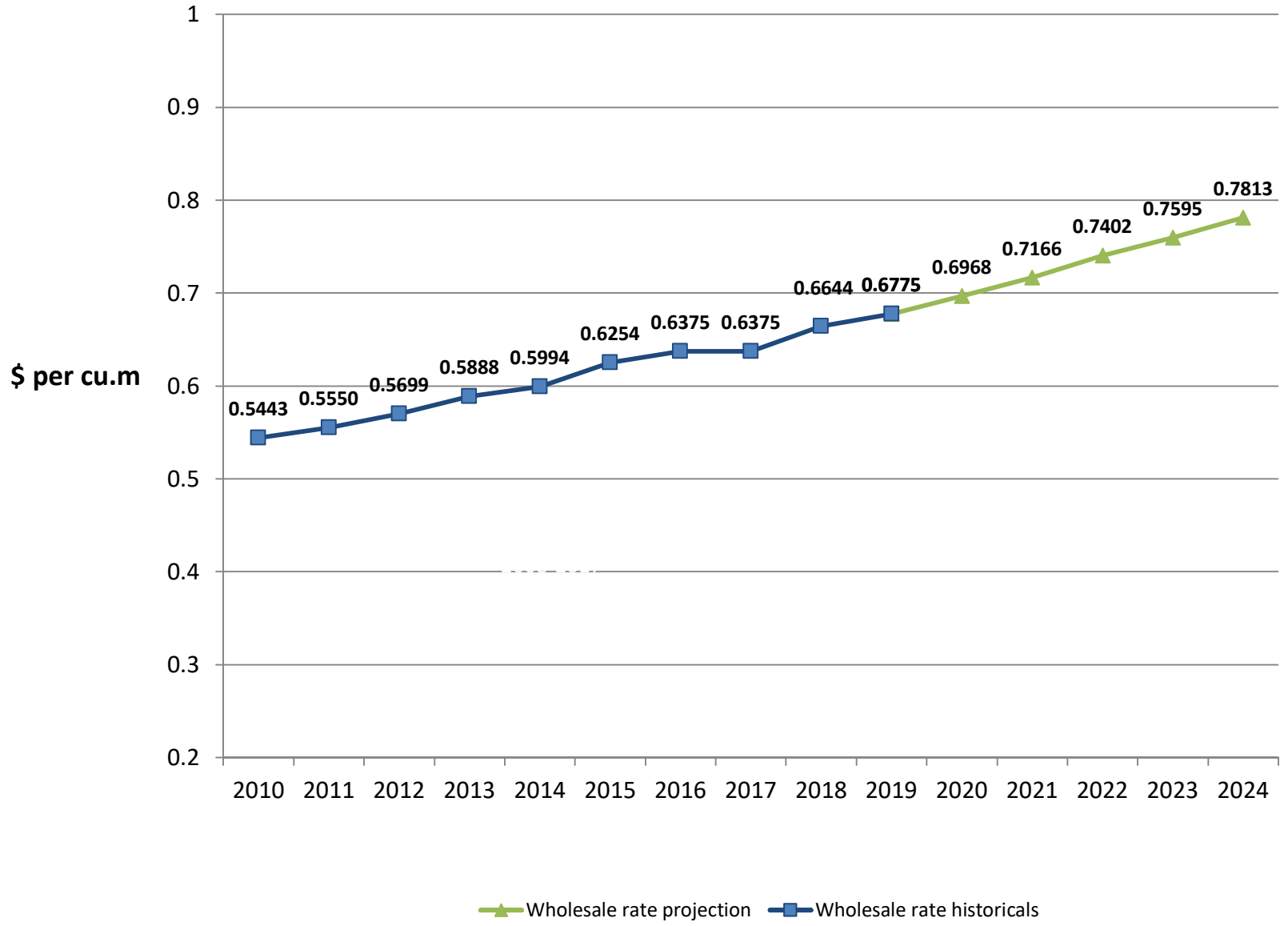
		No. of AR Accounts	No. of AG Accounts	AR Volume m3	AG Volume m3	Avg AR Volume m3 (Vol/Accts)	Avg AG Volume m3	Agri Rate Consumption Costs	Agri Fixed Charge Costs	Total Agri Subsidy Paid out (Cons + Fixed)	Avg Agri Cost $ (Paid/Accts)	%age of Total Paid out	Rate Differential: Municipal Rate m3 A	Rate Differential: Agri Rate m3 B	Rate Differential: Muni-CRD Diff m3 A - B
Western Communities & Sooke *															
	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															
	2018	278	49	263,207	412,819	947	8,425	$ 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 **															
	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															
	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															
	2018	543	132	438,941	615,050	808	4,659	$ 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.

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



Making a difference...together

RWSC 19-18

REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, OCTOBER 16, 2019

SUBJECT **GREATER VICTORIA WATER SUPPLY AREA MINING ACCESS REQUEST**

ISSUE

To seek Regional Water Supply Commission (the Commission) approval for a placer mining tenure holder to access the Greater Victoria Water Supply Area (GVWSA) under Greater Victoria Water Supply Area Protection Bylaw No. 2804.

BACKGROUND

A GVWSA mining access application was received in September for Commission decision.

Provincial Legislation

Under the *BC Mineral Tenures Act* and *Mining Right of Way Act*, the Capital Regional District (CRD) is required to allow mining tenure holders access to their tenures in the Leech Water Supply Area (WSA); however, reasonable conditions may be imposed on access. Further, the *Mining Right of Way Act* gives the registered holder(s) of a mining tenure the right to use existing roads on private land to access their tenure for mining purposes.

GVWSA Protection Bylaw and Policy

Under the Greater Victoria Water Supply Area Protection Bylaw No. 2804, the General Manager will seek approval for access and special use of the GVWSA from the Commission. By policy and procedure (*Water Supply Area Access and Special Use Request and Approval Policy and Procedure*), all access requests, except those under prescribed situations (e.g., academic research, CRD contractors), are forwarded to the Commission. Mining access and special use is not a prescribed situation under the Procedure and the application is therefore presented to the Commission for decision.

Accompanying Persons Requests

The *Mineral Tenure Act* requires the CRD to provide access to a valid mining tenure holder, their agents and free miners they invite. The purpose of the access for the tenure holder and accompanying persons can only be to conduct mining activities. An agent is defined in common law as a person who is acting under the direction and authority of the tenure holder. A free miner includes anyone who holds a valid free mining certificate issued annually by the Ministry of Energy, Mines and Petroleum Resources. Mining work is labour intensive and it is typical in British Columbia for the exploration of minerals and placer mining to bring additional workers to mining tenures. Under the GVWSA Protection Bylaw, the CRD requires all persons entering the GVWSA to be authorized prior to entry. Tenure holders must provide evidence of agency or free mining status, along with adequate insurance prior to access authorization.

2019 Mining Access and Special Use Applications

Table 1 lists one tenure holder who has newly acquired a tenure (through sale) in the Leech WSA.

Table 1. Mining Access and Special Use Applications – Leech Water Supply Area

Tenure Holder	Accompanying Persons	Placer Tenure	Mineral Tenure	Date Tenure Issued*	Tenure Renewal Date*	Tenure Size (ha)
Bryan Jefferies	Andrew Zradicka Paul LaRouche	570771		2007-11-26	2021-11-26	42.8

* Date Issued / Renewal Date information from the BC Mineral Tenures Online database as of September 26, 2019.

The applicant has $3 million liability and $1 million firefighting insurance through membership with the Vancouver Island Placer Miners' Association. Applicants must submit evidence of vehicle insurance, permission to transit through adjacent TimberWest private forest lands (where transit is required), and sign an Access Agreement that provides the CRD with a liability waiver and sets out the conditions for access prior to entry. No access is permitted during extreme fire danger rating as a condition of the Access Agreement.

The miner has indicated on the Landowner Notification the intention to conduct "sniping in the River" [Leech River]. CRD will inform the miner that the use of suction dredging and hand or mechanically powered "sniping" equipment is not considered an acceptable placer mining practice[1], and is not authorized on CRD lands.

The redacted access application and Land Owner Notification (Appendix A) and proposed Access Agreement (Appendix B) are available in advance or on the day of meeting by request.

Risk and Mitigation
The risks, planned mitigation and conditions of the additional access and use of the Leech WSA by mining tenure holders are summarized in the following table:

Risk/Implication	Access Factors	Mitigation / Conditions
Environmental Fire	• Varied fire danger throughout the year	• Condition: No access during extreme fire danger rating or at other times of special concern • No fires permitted, cooking stoves only • Requirement to carry firefighting tools in vehicles during fire season • Fire suppression insurance • CRD monitoring through air and ground patrols
Environmental Contamination Sediment Pathogens	• Vehicles, people/tools working in or near water • Access and activities outside of current drinking water catchment	• Condition: No pets allowed • No storage of fuel or hazardous materials while not on site • CRD ground patrol monitoring

[1] Mineral Titles Branch, Ministry of Energy and Mines 2016: Information Update #38 – Acceptable Practices for Placer Hand Mining in British Columbia.

Risk/Implication	Access Factors	Mitigation / Conditions
Safety/CRD Risk	• Potential for miner to be injured on CRD property	• Condition: Radio required for travel on Greater Victoria Water Supply Area roads. • Condition: Watershed orientation • Condition: Access Agreement Indemnification and Waiver • Condition: Vehicle and liability insurance
Economic	• Administration effort	• CRD ground patrol field time
Inter-Governmental	• Entry/access required under provincial Acts	• Condition: Valid tenure held by the applicant and up-to-date Free Mining Certificate

CONCLUSION

The Capital Regional District (CRD) has received notice, under Section 19 of the *Mineral Tenure Act,* as well as by application for Greater Victoria Water Supply Area access and special use, from a mining tenure holder to access and use the Leech Water Supply Area for placer mining activities. Given the applicant's rights to access the Leech WSA under the *Mineral Tenures Act* and *Mining Right of Way Act*, CRD approval is not required to enable the tenure holder, and their agents and invited free miners, access to the Leech WSA, however reasonable conditions may be imposed by the CRD through Access Agreements.

RECOMMENDATIONS

That the Regional Water Supply Commission authorize access and special use to:

a. the mining tenure holder, Bryan Jefferies; and,
b. accompanying agents and free miners, Andrew Zradicka and Paul LaRouche, whose status can be confirmed, and that meet CRD insurance requirements;

for the valid mining tenures held, subject to the conditions of the Access Agreement.

Submitted by:	Annette Constabel, M.Sc., R.P.F., P.M.P., Senior Manager, Watershed Protection
Concurrence:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Robert Lapham, M.C.I.P., R.P.P., Chief Administrative Officer

AC:dd

Attachments: (2) Available on request

1. Appendix A Access and Special Use Request Application Form and Landowner Notification (redacted)
2. Appendix B 2019 Access Agreement (redacted)

68

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RWSC 19-17

REPORT TO REGIONAL WATER SUPPLY COMMISSION
MEETING OF WEDNESDAY, SEPTEMBER 18, 2019

SUBJECT **SUMMARY OF THE 2019 PUBLIC AND SCHOOL TOURS OF THE GREATER VICTORIA WATER SUPPLY AREA AND WATER SUPPLY FACILITIES**

ISSUE

To provide a summary of the 2019 public and school tours of the Greater Victoria Water Supply Area (GVWSA) and Water Supply Facilities.

BACKGROUND

For the past 30 years, Integrated Water Services has provided bus tours of the Greater Victoria Water Supply Area and Water Supply Facilities. The public tours (see Appendix A) provide participants with an opportunity to gain a better understanding of:

- where Greater Victoria's drinking water comes from;
- the high quality of water in source reservoirs;
- the characteristics of the water supply area and drinking water infrastructure;
- the care taken to safeguard the drinking water resource;
- how source water is disinfected;
- the value of water conservation; and,
- water pricing

As in recent years, 2019 public tours were offered on a schedule of weekday and weekend dates, and for a third year, school tours were targeted to local grade five classes, linking the tour and activities in the water supply area with the school curriculum. With a 0.5 FTE increase dedicated to GVWSA tours approved by the Capital Regional District (CRD) Board in 2018, the number of school tours was able to be expanded.

2019 TOURS AND PARTICIPATION

Public Tours

Public tours were offered four days per week (Thursday to Sunday) in June and July except for the Canada Day long weekend. Only "long" five-hour public tours were provided following the path of drinking water from source to treatment (short tours were not offered this year based on past participant feedback and logistic challenges).

An improved online registration system for 2019 resulted in fewer "no shows" with more wait-listed participants being accommodated. The number of participants on a public tour ranged from 26 to 45 with an average of 36.5 per tour. The number of people on a waitlist ranged from 0 to 18 with an average of 3.3 waitlisted per tour.

68

The following table compares tour participation statistics from the last 4 years. In 2019 the number of public tours offered remained the same while participation increased by 7 %.

Tour Type	2016		2017		2018		2019	
	Tours	Participants	Tours	Participants	Tours	Participants	Tours	Participants
School	4	129	13	390	18	426	**26**	**770**
Public	18	567	18	490	16	547	**16**	**584**
Total	**22**	**696**	**31**	**880**	**34**	**973**	**42**	**1,354**

School Tours

There were 26 grade 5 school tours provided over a span of seven weeks; typically four tours were per week. Registration information was sent to all schools (public and private) in the Greater Victoria area and bookings were made on a first come, first served basis. There were 682 students that attended the tours with 88 accompanying adults, for a total of 770 individuals.

The table above shows the expansion of school tours over the last four years and the corresponding increase in participation.

Elementary schools that participated in sending one or more classes in 2019 include: Marigold, Kelset, Cloverdale, Frank Hobbs, Strawberry Vale, Tillicum, Sir James Douglas, View Royal, Prospect Lake, Quadra, Hillcrest, Doncaster, St Joseph's, Margaret Jenkins, Sooke, Keating, Lakehill, Macauley, Deep Cove, and Millstream.

The school program covered the following topics:

- Water on a global scale & what is a watershed?
- Learning about our forest and native plants
- The risk of a wildfire to our water supply
- Where our drinking water comes from and how its delivered to our homes
- How our drinking water is disinfected
- What we can do to conserve drinking water

Technical Tours

Technical tours are offered throughout the year and vary in focus and length. In 2019 so far, eight technical tours were provided to:

- Camosun College (Civil engineering)
- University of Victoria (Geography; Hydrology; Environmental Restoration)
- Simon Fraser (Water Resource Management)
- BC Water and Wastewater Association (as part of Victoria conference)
- Local First Nations
- City of Victoria engineering staff

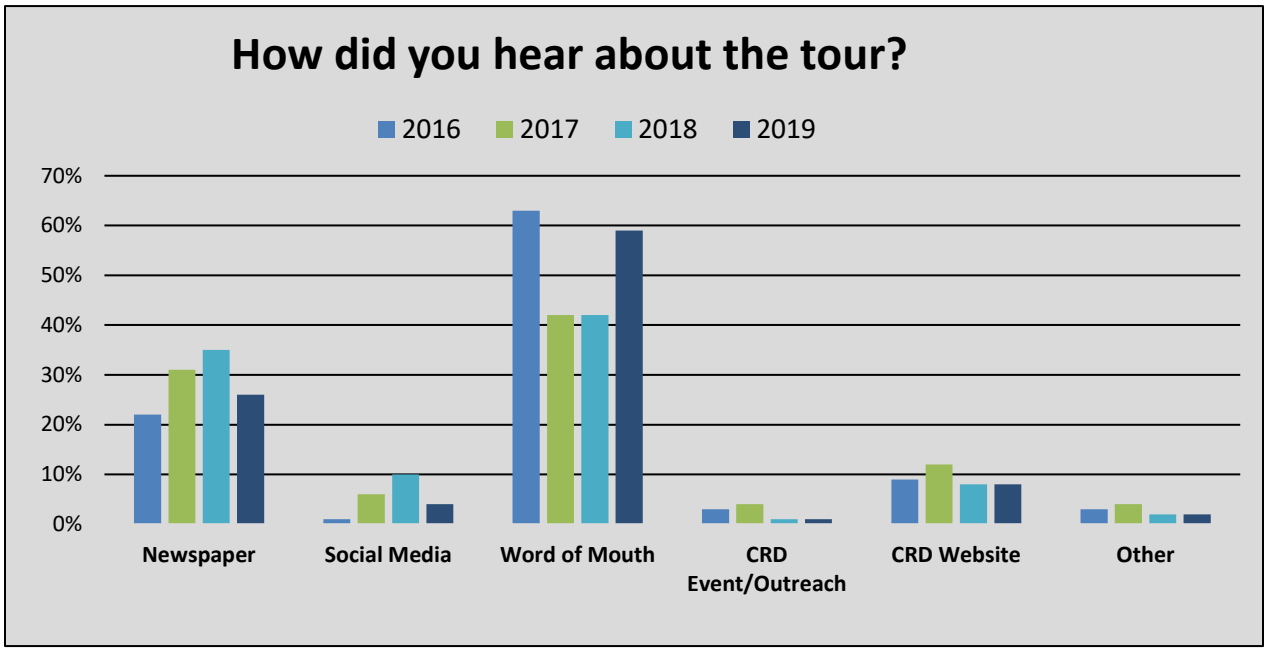
A special tour of the water supply disinfection facilities and emergency water supply vehicles and equipment was also provided to members of the CRD Board, Regional Water Supply Commission, and Water Advisory Committee in June.

BUDGET

The cost to deliver the public and school tour programs in 2019 totalled $64,000 ($65,500 budgeted) not including the time of the dedicated 0.5 FTE which is fully funded through the Watershed Protection operating budget.

ADVERTISING

A variety of media and methods continue to be used to advertise the public tours. As in previous years, word of mouth and newspaper advertisements are still the most successful methods to reach tour participants.



PARTICIPANT FEEDBACK

A tour survey was completed by 425 individuals or 73% of the public tour participants. Of those who responded, 84% were on a tour for the first time. As in previous years, the tours were well received with 93% of those surveyed rating the tour as “excellent”. The aspects respondents enjoyed most were the forest walk, information presented during the tour, seeing Sooke Lake Dam, wildlife and the opportunity to tour an otherwise restricted area.

The vast majority of respondents did not think there was any aspect of the tour that needed improving. However, some wished for more public tour dates and the opportunity for tours in the

fall. A few respondents expressed a desire for a longer forest walk. The only complaint was regarding transportation, some found the school bus uncomfortable and the dust from the gravel roads bothered some.

To date, feedback has been received from three teachers about the 2019 school tours. All were extremely positive.

PLANS FOR 2020

Having met the 2019 goal of expanding the school tour program while maintaining the same level of public tours, in 2020, the goal is to further expand the public tour program within established budgets. This may include re-introducing short tours and/or providing tours over an expanded period into August and September.

The display and handout materials will be reviewed and revised prior to 2020 tours. A goal moving forward is to provide more local First Nations knowledge of the lands, animals and plants of the GVWSA.

CONCLUSION

The 2019 "Get to Know Your H_2O Tours" of the Greater Victoria Water Supply Area met goals for increasing grade five school children participation and were well received by both schools and the public. A total of 1,354 public and grade five children participated in one of the 42 tours that were provided. A high percentage of public tour participants and children were on a tour for the first time. Word of mouth and newspaper advertising remains the most important method of advertising the tours. A moderate expansion of the public tour program is being considered for 2020.

RECOMMENDATION

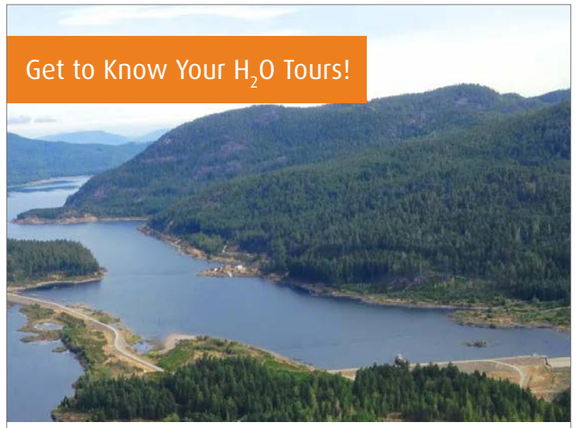
That the Regional Water Supply Commission receive this staff report for information.

Submitted by:	Annette Constabel, M.Sc., R.P.F., P.M.P., Senior Manager, Watershed Protection
Concurrence:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Robert Lapham, M.C.I.P., R.P.P., Chief Administrative Officer

HW:AC:dd

Attachments: 1
- Appendix A: Tour Brochure

72



Sooke and Deception Reservoirs

Get to Know Your H_2O Tours!

Welcome to the Get to Know Your H_2O Tours

The Capital Regional District's Get to Know Your H_2O Tours are a great way to discover how high-quality drinking water is delivered from the source to your tap. During the tour you will learn about the natural landscapes, water supply reservoirs, and disinfection process that provide Greater Victoria with high quality drinking water.

All tours are guided by CRD staff onboard a bus. Each tour will have various stops for you to see and hear about the area and facilities. Outhouse sanitary facilities are provided at each stop along the tour. Please refer to the map for your tour route and stops. No garbage or recycling facilities are provided - please pack out what you pack in. We would appreciate you taking the time to fill out the feedback form either on the tour or online at www.crd.bc.ca/watertours.

Thank you for your interest in the Greater Victoria Water Supply System.

Historical Milestones for the Water System

1915 Sooke Lake Water System Built

1944 Water Disinfection Begins

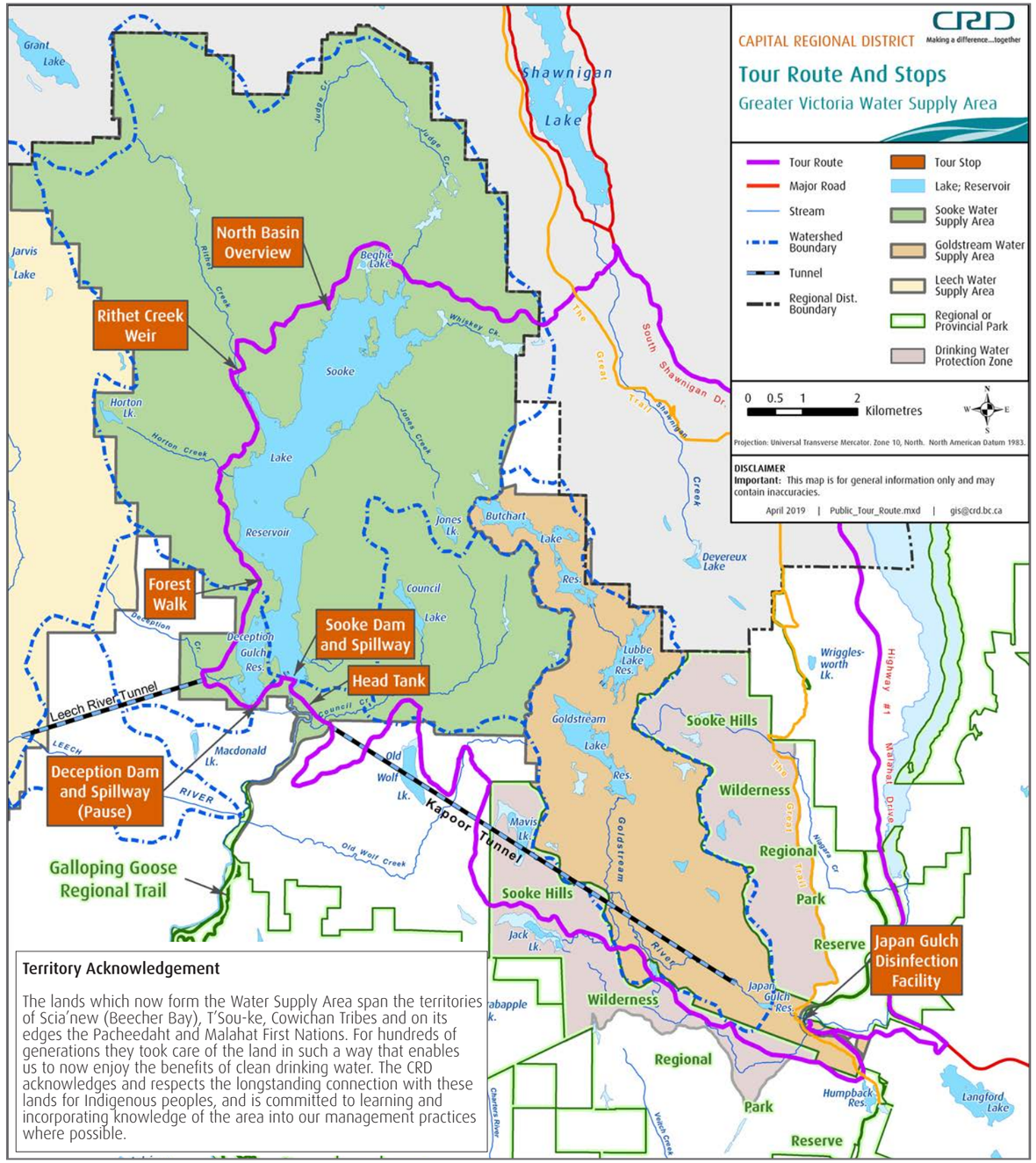
1970 First Reservoir Expansion & Kapoor Tunnel Built.

1975 Water to Saanich Peninsula

1997 Water Service transferred to the CRD

2003 Raising Sooke Lake Dam (Nearly doubling storage)

2007 Leech Water Supply Area Purchased for Future Water



Territory Acknowledgement

The lands which now form the Water Supply Area span the territories of Sc'ianew (Beecher Bay), T'Sou-ke, Cowichan Tribes and on its edges the Pacheedaht and Malahat First Nations. For hundreds of generations they took care of the land in such a way that enables us to now enjoy the benefits of clean drinking water. The CRD acknowledges and respects the longstanding connection with these lands for Indigenous peoples, and is committed to learning and incorporating knowledge of the area into our management practices where possible.

CRD Crews Working on Drinking Water Infrastructure Renewal

The Greater Victoria Water Supply System

The Capital Regional District (CRD) supplies drinking water for more than 375,000 people, supporting residential, commercial, institutional, light industrial, agriculture and fire protection uses across the Greater Victoria area.

The water system operates under a CRD regional service, known as the Regional Water Supply Service, which is administered by the Regional Water Supply Commission.

The Integrated Water Services Department of the CRD has responsibility for:

- Supply, treatment and delivery of bulk (wholesale) drinking water to municipalities in the Greater Victoria area
- Delivery and sale of water directly to homes and businesses in the West Shore municipalities, including Sooke and parts of the Juan de Fuca Electoral Area

For the Greater Victoria Water Supply System, Integrated Water Services operates:

- Five surface water supply reservoirs storing approximately 102 million cubic metres of water when filled to capacity
- The 8.8 km long Kapoor Tunnel
- Approximately 130 km of pipe and tunnel ranging in size from 400mm to 2,134mm in diameter
- Two water treatment facilities where the water is disinfected using ultraviolet light, chlorine and then chloramination (a mixture of chlorine and ammonia),
- Two large supply system balancing reservoirs and nine pressure regulating stations

72

73

Japan Gulch Disinfection Facility

Why do we need to disinfect our drinking water?

Even though Sooke Lake Reservoir is a high-quality source of drinking water, it can contain low levels of bacteria, viruses or parasites that come from the birds and animals which inhabit the watershed lands. Some of these organisms can be harmful to human health. To protect public health, the drinking water is disinfected before it is supplied to the public.

How is our drinking water disinfected?

CRD Integrated Water Services disinfects Greater Victoria's drinking water using a three-step process:

Step 1. UV Disinfection

Ultraviolet (UV) disinfection is the first step. UV kills bacteria and parasites such as Giardia and Cryptosporidium.

Step 2. Chlorine Disinfection

Chlorine is added as the second step. The low dose (1.5–2.5 mg/L) of chlorine kills viruses and provides additional protection against bacteria.

Step 3. Ammonia Added

Ammonia is added as the final step. The tiny quantity of ammonia combines with chlorine to produce chloramines. Chloramine is a long-lasting disinfectant which protects the water from bacterial contamination as it travels through the distribution system pipelines in Greater Victoria to your tap.

Watershed Protection

How is our drinking water protected?

CRD Integrated Water Services uses a multiple barrier strategy to prevent contamination of Greater Victoria's drinking water. The barriers listed below protect and maintain the quality of our drinking water from the Sooke & Goldstream Water Supply Areas to your tap:

- Watershed lands are 98% owned by CRD
- Extensive watershed protection programs
- No public access, no swimming or public boating
- No farming, logging or mining in watershed areas
- No fertilizers used in watershed areas
- Three-stage water disinfection
- Well trained staff, certified operators
- Good distribution system maintenance
- Pipe replacement program
- Cross connection control program
- Extensive water quality monitoring
- Certified water quality laboratory

CRD Bylaw 2804

CRD Bylaw 2804 (Greater Victoria Water Supply Area Protection Bylaw) regulates access and activities in the GVWSA. All access to the GVWSA requires authorization (access permit) and activities of those authorized are restricted. Any person violating the bylaw can be charged and fined. For more information on the bylaw, visit: **www.crd.bc.ca/gvwsa**

Water Supply Intake at Sooke Lake Reservoir

How can we help protect our water supply?

- Respect the bylaw and rules regulating public access and human activities in the Greater Victoria Water Supply Area (GVWSA)
- Talk to your friends and family about the importance of the protection and stewardship of our water supply lands
- Consider the water supply when recreating on adjacent lands. Be aware of the wildfire danger rating, ensure campfires are completely extinguished and immediately report any fire start. Do not let pets wander and clean up after them.
- Use water efficiently. In general, the more water that is in the water supply reservoirs, the better the quality of the water
- Report occurrences of invasive plants and problem wildlife (such as beaver and American bullfrog) on lands that are near the water supply area
- Take a tour of the water supply area to learn more about the importance of the protection and stewardship of the GVWSA in maintaining high-quality drinking water

CRD
Making a difference...together

Capital Regional District | Integrated Water Services
479 Island Highway, Victoria, BC V9B 1H7
T: 250.474.9601 | F: 250.474.4012
www.crd.bc.ca/gvwsa

Printed on recycled paper.

Get to Know Your H_2O

Tours of the Greater Victoria Water Supply Area & Water Supply Facilities

CRD | Integrated Water Services

73

74

Making a difference...together

CAPITAL REGIONAL DISTRICT
JUAN DE FUCA WATER DISTRIBUTION COMMISSION
Meeting held Tuesday, October 1, 2019

MEETING HOTSHEET (ACTION LIST)

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

2. Adoption of Minutes of July 2, 2019 meeting

That the minutes of the July 2, 2019 Juan de Fuca Water Distribution Commission meeting be adopted as circulated.

CARRIED

7. Commission Business

7.1. JWDC 19-12 Juan de Fuca Water Distribution Service – 2020 Operating and Capital Budget

That the Juan de Fuca Water Distribution Commission recommends that the Capital Regional District Board:

1. Approve the 2020 Capital Budget and the Five Year Capital Plan;
2. Approve the 2020 Operating Budget;
3. Approve the 2020 Juan de Fuca Water Distribution Service retail water rate of $2.2159 per cubic metre, adjusted if necessary by any change in the Regional Water Supply wholesale water rate; and
4. Amend the Water Distribution Local Service Conditions, Fees and Charges Bylaw accordingly.

CARRIED

74

File No. 902-03

CAPITAL REGIONAL DISTRICT - INTEGRATED WATER SERVICES

Water Watch

Issued October 07, 2019

Water Supply System Summary:

1. Useable Volume in Storage:

Reservoir	October 31 5 Year Ave		October 31/18		October 6/19		% Existing Full Storage
	ML	MIG	ML	MIG	ML	MIG	
Sooke	64,739	14,243	60,374	13,282	63,632	13,999	68.6%
Goldstream	5,980	1,316	5,980	1,316	4,019	884	40.9%
Total	70,719	15,558	66,354	14,598	67,651	14,883	66.0%

2. Average Daily Demand:

For the month of October	113.0 MLD	24.85 MIGD
For week ending October 06, 2019	113.2 MLD	24.90 MIGD
Max. day October 2019, to date:	117.3 MLD	25.81 MIGD

3. Average 5 Year Daily Demand for October

Average (2014 - 2018)	109.0 MLD [1]	23.98 MIGD [2]

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

4. Rainfall October:

Average (1914 - 2018):	169.9 mm
Actual Rainfall to Date	15.2 mm (9% of monthly average)

5. Rainfall: Sep 1- Oct 6

Average (1914 - 2018):	83.3 mm
2019	131.8 mm (158% of average)

6. Water Conservation Action Required:

If each of us saves a little, together we can save a lot.
Check our website at www.crd.bc.ca/water for more information.

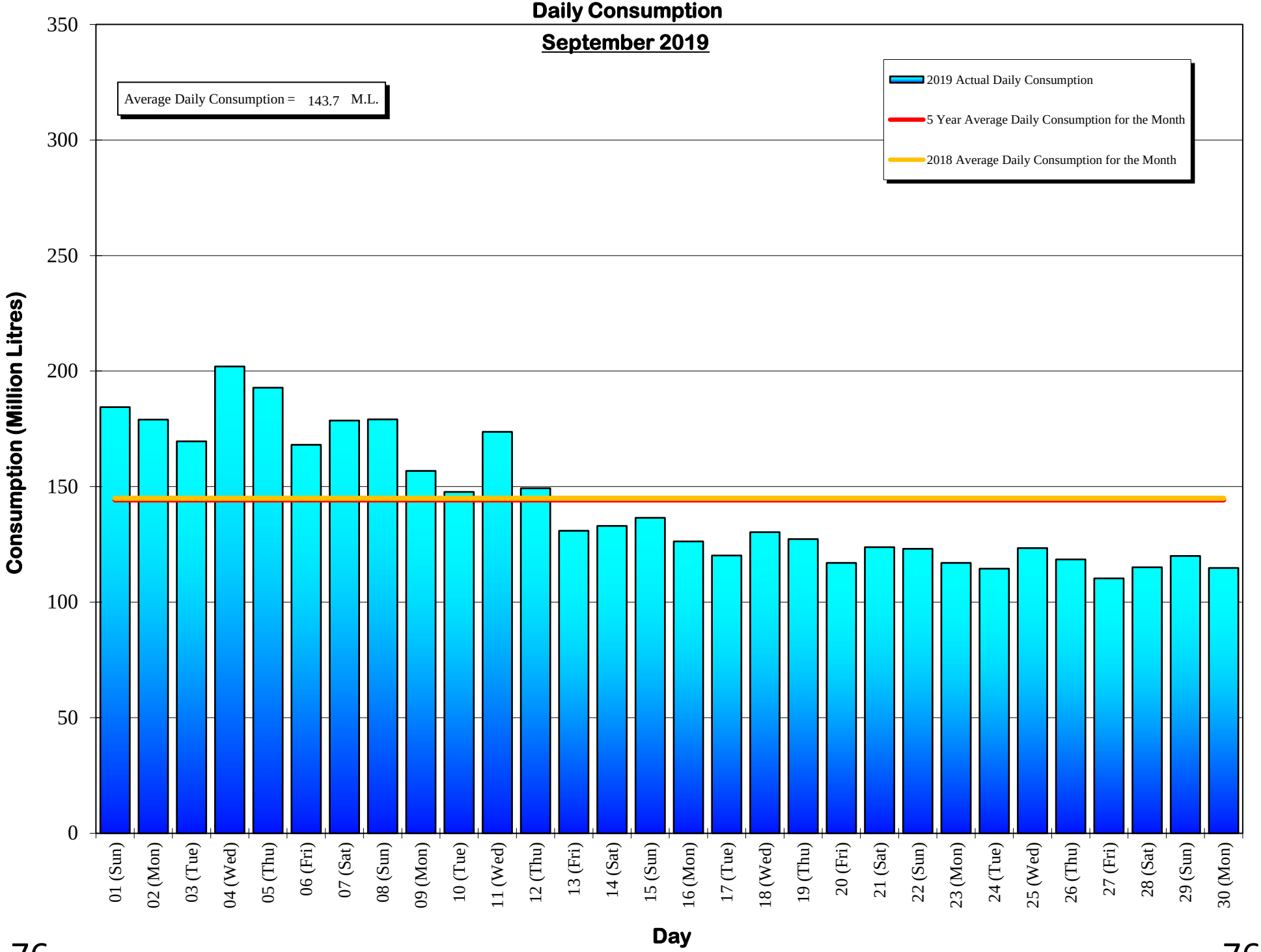
If you require further information, please contact:

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

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

76

Daily Consumption
September 2019



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77

Daily Consumptions: - September 2019

Date	Total Consumption			Air Temperature @ Japan Gulch		Weather Conditions	Precipitation @ Sooke Res.: 12:00am to 12:00am		
	(ML) [1.]		(MIG) [2.]	High (°C)	Low (°C)		Rainfall (mm)	Snowfall [3.] (mm)	Total Precip.
01 (Sun)	184.4		40.6	23	14	Sunny / P. Cloudy	0.0	0.0	0.0
02 (Mon)	179.0		39.4	24	13	Sunny	0.0	0.0	0.0
03 (Tue)	169.6		37.3	27	14	Sunny / P. Cloudy	0.0	0.0	0.0
04 (Wed)	202.0	<=Max	44.4	23	13	Sunny	0.0	0.0	0.0
05 (Thu)	192.8		42.4	26	13	Sunny / P. Overcast	0.0	0.0	0.0
06 (Fri)	168.1		37.0	27	14	Sunny / P. Cloudy	0.0	0.0	0.0
07 (Sat)	178.6		39.3	22	13	Sunny / P. Cloudy	0.0	0.0	0.0
08 (Sun)	179.1		39.4	22	14	Cloudy / P. Sunny	0.0	0.0	0.0
09 (Mon)	156.8		34.5	18	12	Cloudy / Rain	16.0	0.0	16.0
10 (Tue)	147.7		32.5	18	12	Cloudy / P. Sunny	0.0	0.0	0.0
11 (Wed)	173.7		38.2	19	12	Sunny / P. Cloudy	0.0	0.0	0.0
12 (Thu)	149.3		32.9	16	13	Cloudy / Rain	30.7	0.0	30.7
13 (Fri)	130.9		28.8	18	13	Cloudy / Showers	4.6	0.0	4.6
14 (Sat)	133.0		29.3	17	13	Cloudy / Showers	13.2	0.0	13.2
15 (Sun)	136.5		30.0	18	10	Cloudy / Showers / P. Sunny	2.8	0.0	2.8
16 (Mon)	126.3		27.8	16	10	Cloudy / P. Sunny	0.0	0.0	0.0
17 (Tue)	120.2		26.4	15	11	Cloudy / Rain	22.9	0.0	22.9
18 (Wed)	130.3		28.7	17	11	Cloudy / Showers	1.3	0.0	1.3
19 (Thu)	127.3		28.0	18	10	Cloudy / Showers	0.5	0.0	0.5
20 (Fri)	117.0		25.7	18	11	Sunny / P. Cloudy	0.0	0.0	0.0
21 (Sat)	123.8		27.2	17	10	Cloudy / Showers / P. Sunny	0.8	0.0	0.8
22 (Sun)	123.1		27.1	16	13	Cloudy / Showers	4.8	0.0	4.8
23 (Mon)	117.0		25.7	14	11	Cloudy / Showers	10.1	0.0	10.1
24 (Tue)	114.5		25.2	19	10	Sunny / P. Cloudy	0.0	0.0	0.0
25 (Wed)	123.4		27.1	17	8	Sunny / P. Cloudy / Showers	0.8	0.0	0.8
26 (Thu)	118.5		26.1	18	11	Cloudy / Showers / P. Sunny	4.3	0.0	4.3
27 (Fri)	110.3	<=Min	24.3	15	7	Cloudy / Showers / P. Sunny	3.8	0.0	3.8
28 (Sat)	115.1		25.3	14	7	Sunny / P. Cloudy	0.0	0.0	0.0
29 (Sun)	120.0		26.4	13	7	Cloudy / P. Sunny	0.0	0.0	0.0
30 (Mon)	114.8		25.2	14	5	Sunny / P. Cloudy	0.0	0.0	0.0
TOTAL	4168.3 ML		917.03 MIG				116.6	0	116.6
MAX	202.0		44.45	27	14		30.7	0	30.7
AVE	**143.7**		31.41	18.6	11.2		3.9	0	3.9
MIN	110.3		24.27	13	5		0.0	0	0.0

1. ML = Million Litres 2. MIG = Million Imperial Gallons 3. 10% of snow depth applied to rainfall figures for snow to water equivalent.

Average Rainfall for September (1914-2018)	64.2	mm
Actual Rainfall: September	116.6	mm
% of Average	182%	
Average Rainfall (1914-2018): Sept 01 - Sep 30	64.2	mm
Actual Rainfall (2019): Sept 01 - Sep 30	116.6	mm
% of Average	182%	

Number days with precip. 0.2 or more
14

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

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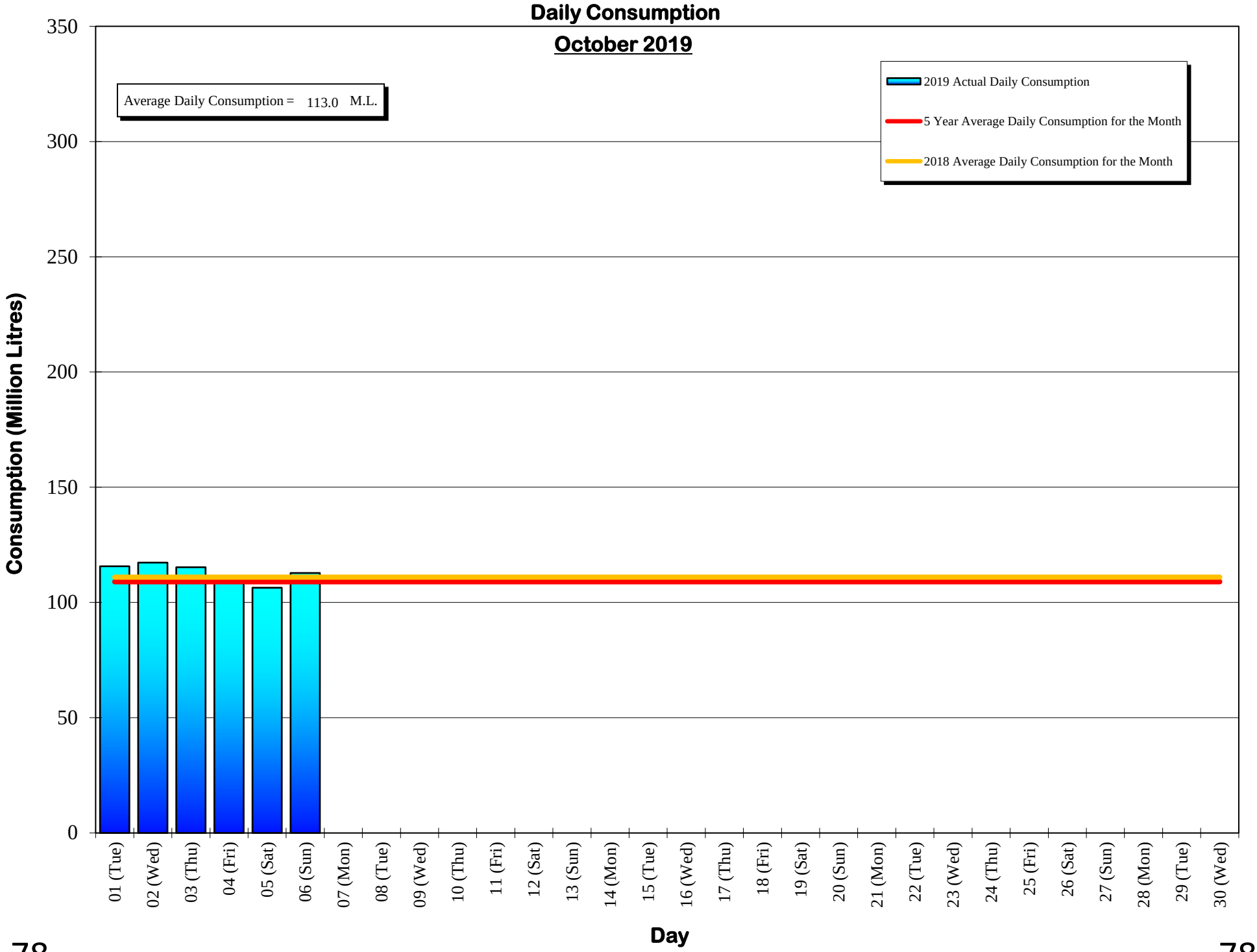

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Daily Consumptions: - October 2019

Date	Total Consumption			Air Temperature @ Japan Gulch		Weather Conditions	Precipitation @ Sooke Res.: 12:00am to 12:00am		
	(ML) [1.]		(MIG) [2.]	High (°C)	Low (°C)		Rainfall (mm)	Snowfall [3.] (mm)	Total Precip.
01 (Tue)	115.7		25.4	15	4	Sunny / P. Cloudy	0.0	0.0	0.0
02 (Wed)	117.3	<=Max	25.8	13	6	Cloudy / Showers / P. Sunny	1.0	0.0	1.0
03 (Thu)	115.3		25.4	14	7	Cloudy / Showers / P. Sunny	1.8	0.0	1.8
04 (Fri)	110.3		24.3	11	7	Cloudy / Showers / P. Sunny	9.4	0.0	9.4
05 (Sat)	106.4	<=Min	23.4	13	7	Cloudy / Showers / P. Sunny	3.0	0.0	3.0
06 (Sun)	112.8		24.8	14	5	Cloudy / P. Sunny	0.0	0.0	0.0
07 (Mon)									
08 (Tue)									
09 (Wed)									
10 (Thu)									
11 (Fri)									
12 (Sat)									
13 (Sun)									
14 (Mon)									
15 (Tue)									
16 (Wed)									
17 (Thu)									
18 (Fri)									
19 (Sat)									
20 (Sun)									
21 (Mon)									
22 (Tue)									
23 (Wed)									
24 (Thu)									
25 (Fri)									
26 (Sat)									
27 (Sun)									
28 (Mon)									
29 (Tue)									
30 (Wed)									
31 (Thu)									
TOTAL	677.8 ML		149.1 MIG				15.2	0	15.2
MAX	117.3		25.81	15	7		9.4	0	9.4
AVE	**113.0**		24.85	13.3	6.0		2.5	0	2.5
MIN	106.4		23.41	11	4		0.0	0	0.0

1. ML = Million Litres 2. MIG = Million Imperial Gallons 3. 10% of snow depth applied to rainfall figures for snow to water equivalent.

Average Rainfall for October (1914-2018)	169.9	mm
Actual Rainfall: October	15.2	mm
% of Average	9%	
Average Rainfall (1914-2018): Sept 01 - Oct 06	83.3	mm
Actual Rainfall (2019): Sept 01 - Oct 06	131.8	mm
% of Average	158%	

Number days with precip. 0.2 or more
4

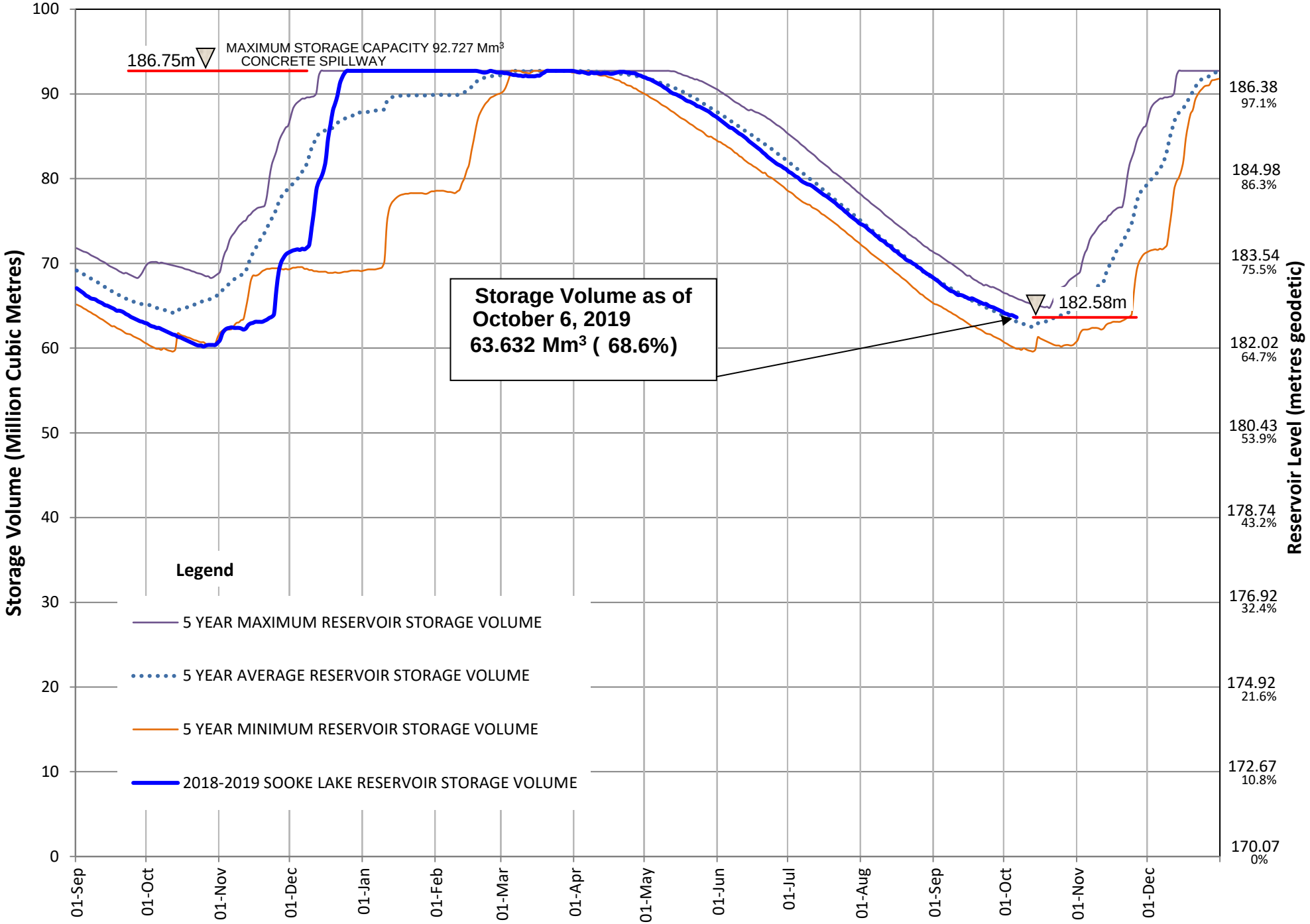
Water spilled at Sooke Reservoir to date (since Sept. 1) = 0.00 Billion Imperial Gallons
= 0.00 Billion Litres

79

80

SOOKE LAKE RESERVOIR STORAGE SUMMARY
2018 / 2019

80



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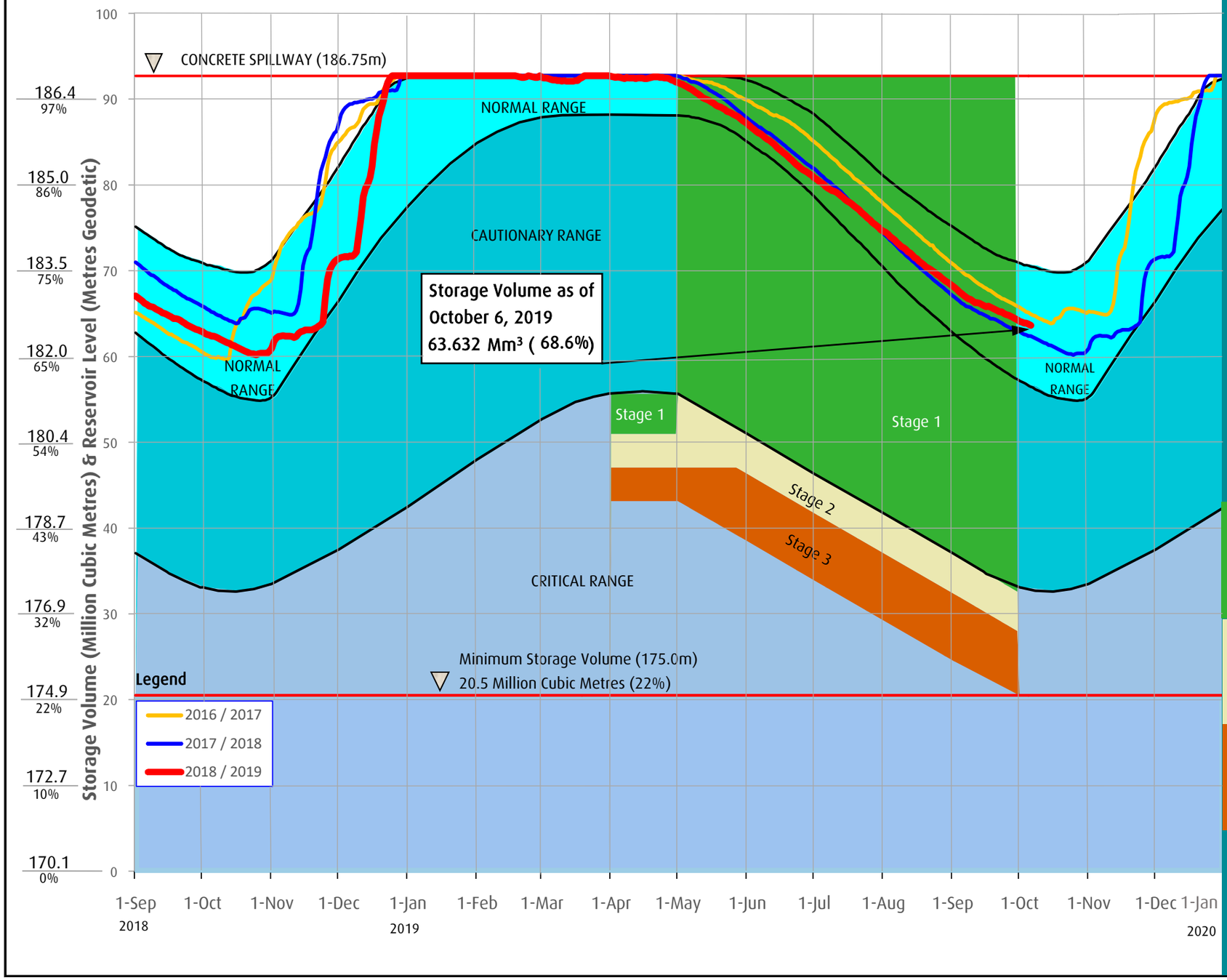
81

Sooke Lake Reservoir Storage Level
Water Supply Management Plan



FAQs

How are water restriction stages determined?

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

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

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

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

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

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

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

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

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81

82

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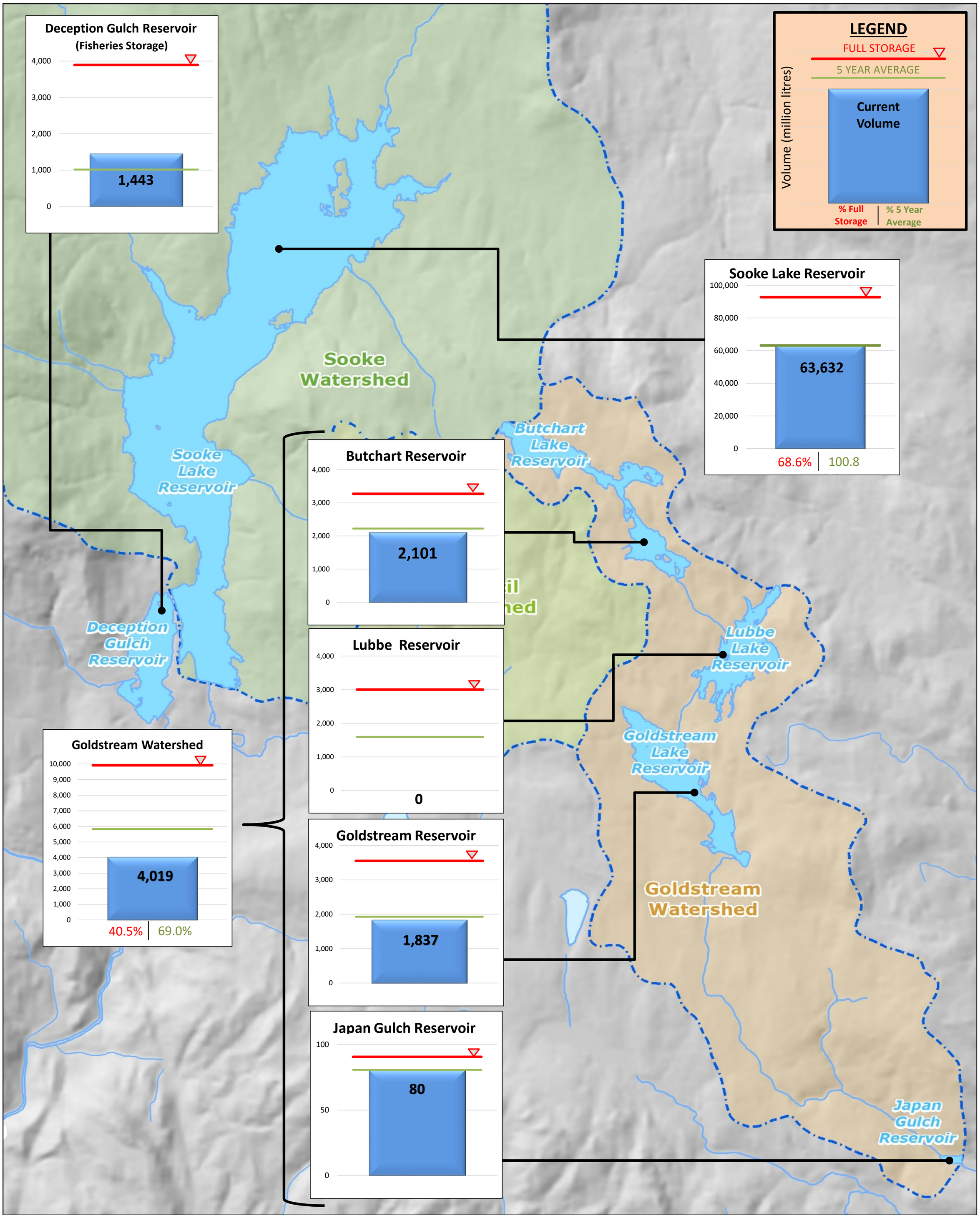
Useable Reservoir Volumes in Storage for October 06, 2019



82

83

Peninsula & Area Agricultural Commission

c/o Saanich Municipal Hall
770 Vernon Avenue, Victoria, B.C. V8X 2W7
Telephone: (250) 475-1775 Fax: (250) 475-5440
Secretary: Isobel Hoffmann, isobel.hoffmann@saanich.ca
Co-Chairs: Jack Mar & Phil Christie

May 13, 2019

Mr. Ted Robbins, General Manager
Integrated Water Services
Capital Regional District
479 Island Highway
Victoria, BC V9B 1H7

Dear Mr. Robbins:

The Peninsula and Area Agricultural Commission has recently completed an evaluation of farm water charges and reconciliation from the three main agricultural water user municipalities (Saanich, Central Saanich, North Saanich). We found that there could be ways to simplify and reduce the administrative burden for all parties as it pertains to the CRD's accounting of payments. (See description of variables starting on page 2)

We anticipate the CRD and the municipalities would work together to provide a final cohesive plan for the planting season 2020.

Special notes to:

- **Saanich:** in the interest of fairness, PAAC recommends that Saanich, like the other municipalities, not charge and then rebate the AG farmer fixed per meter tri annual charges.

- **North Saanich:** In the interest of fairness that North Saanich get the rebate from the CRD from AG meters equivalent to the fixed meter charges charged by the other municipalities.

- **Extra Note using 2017 data:** Due to the difference of the bulk wholesale price of water $0.6375 per m3 for Saanich and $0.9111 per m3 for both Central and North Saanich, North Saanich pays an extra $56,176 and Central Saanich pays an extra $190,592 for wholesale water compared to Saanich. This should be addressed by reducing the wholesale bulk water rate for all Agricultural use through the Saanich Peninsula distribution system to match the rate paid by Saanich. This would be similar to the reduced bulk wholesale rate currently paid by the Center for Plant Health.

..../2

83
83

		Central Saanich Example				Saanich example	
	municipality pays	0.9111	m3 wholesale from CRD		municipality pays	0.6375	m3 wholesale from CRD
	farmer rate	0.2015	m3 from municipality		farmer rate	0.2015	m3 from municipality
	retail rate	1.557	m3 from residential customers		retail rate	1.560	m3 from residential customers
	differential	1.356	CRD pays diff of farmer rate and retail rate to municipality		differential	1.359	CRD pays diff of farmer rate and retail rate to municipality
	farmer uses	1	m3		farmer uses	1	m3
	farmer pays	0.2015	m3		farmer pays	0.2015	m3
	muni pays	0.9111	m3		muni pays	0.6375	m3
	muni the hole for	-0.7096	m3		muni the hole for	-0.4360	m3
	CRD pays muni	1.356	m3		CRD pays muni	1.359	m3
Final rebate less cost of bulk water		0.6459	m3 for farm water(345 connections)	Final rebate less cost of bulk water		0.9225	m3 for farm water(130 connections)

PAAC supports farm water rates for food and feed-producing lands whereby the water use and farm production, especially for AR accounts, should be monitored and adjudicated by a professional agrologist/farmer. It is only at the pleasure of the CRD and its member municipalities, which have continued to support food and feed production in the region, that this financial support is available.

This regional only rebate does not fall under the same set of farming rules as applied by both the ALC and the BC Assessment Authority. It is also recommended that some of the money rebated to Municipalities be available for new and/or upgraded meters, back-flow preventers and a comprehensive review and implementation of water balancing and availability in the system to ensure current and expected future demand is available to accredited farmers. This will encourage more food production from both new and established farms.

Working with 2017 data:

Central Saanich: Troy Ziegler contact

- Residential retail rate is a fixed per meter and consumption tri-annual charge.
- AG accounts do not pay a fixed per meter charge. The fixed per meter charge is calculated by CS annually and is rebated to the district from the CRD annually.
- AG accounts pay the agricultural consumption rate of $.2105 per m3 . Central Saanich is rebated annually from the CRD the difference between the retail consumption rate and the ag consumption rate for their total consumption (on their bills it states the retail rate but the actual calculation does not reflect this).
- AR accounts pay the fixed per meter tri-annual charge and it is not rebated from the CRD to the district.
- AR accounts pay retail rates up to 455 m3 usage annually and the agricultural consumption rate thereafter. Central Saanich is rebated annually from the CRD the difference between the retail rate and the AG consumption rate for their total agricultural consumption only.
- Central Saanich has a discount of 10% if bill paid on or before due date.

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Additional comments from Central Saanich

- The amount paid from CRD to Central Saanich (CS) for AG fixed charge and all AG consumption, I would call it a subsidy to CS through the CRD.
- As you know the CRD collects monies from all CRD municipalities/residents in order to subsidize agricultural water charges and rates. That way all CRD residents share the cost of agricultural water subsidy and not just residents in those agricultural communities.
- We refer to the bills as tri-annual billings (every 4 months).
- The 2018 retail water rate was $1.635 m3.
- All bills paid by the due date receive a 10% discount.

North Saanich: Meghan Mason contact

- Residential retail rate is a yearly fixed per parcel charge only and a consumption tri-annual charge.
- Both AG and AR accounts pay a yearly fixed per parcel charge only (no fixed per meter charges and no CRD rebates).
- AG accounts pay the agricultural consumption rate of $.2105 to North Saanich who in turn get rebated from the CRD the difference between this rate and the retail rate on a tri-annual basis.
- AR accounts pay residential retail rates up to 455 m3 annually (divided by 3) and the agricultural consumption rate thereafter on a tri-annual basis.
- The agricultural portion is rebated as above to North Saanich by the CRD on a tri-annual basis.

Additional Comments from North Saanich:

- The North Saanich section is correct, with the exception of the 455 m3 note. The threshold is actually 152 m3 per trimester.

Saanich: Ann Tetley contact

- Residential retail rate is a fixed per meter (varies depending on size of meter) and retail consumption tri-annual charge.
- AG accounts pay the fixed charge per meter (varies depending on size of meter) and the agricultural consumption charge of $.2105 per m3 tri-annually.
- The district rebates the account annually for fixed per meter charges.
- The CRD rebates the district the fixed per meter charges and the difference of the retail and agricultural consumption rate annually.
- AR accounts pay the fixed charge per meter (varies depending on size of meter) and the retail consumption charge tri-annually and the district rebates the account annually for consumption charges over 455 m3 as per above formula.
- The CRD rebates the district the difference of the retail and agricultural rate for agricultural consumption annually. The fixed charge is not rebated from CRD to the district nor from the District to the account

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- Additional comments from Saanich
  The residential rate is set as per category (residential, agricultural, farm) and the rate is applied to usage. In addition to this rate there is a monthly charge for each water connection that varies depending on the size of the meter.
- The District receives a credit from the CRD for the fixed meter charges and the difference between the retail and agricultural rate. The fixed charge amount is refunded to the customer, but the District retains the credit for the difference in consumption between the residential and the agricultural rate.
- The customer has not paid the retail rate to the District - they have been charged the CRD agricultural rate (our farm rate) of $.2105 throughout the year.

Respectfully submitted for your consideration. We look forward to receiving your response.

"Phil Christie & Jack Mar"

Jack Mar and Phil Christie
Co-Chairs, Peninsula & Area Agricultural Commission

cc: Mayor Haynes and Councillors, District of Saanich
Mayor Windsor and Councillors, District of Central Saanich
Mayor Orr and Councillors, District of North Saanich

87

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87