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**REGIONAL WATER SUPPLY COMMISSION**

Notice of Meeting on **Wednesday, October 18, 2017 @ 12:30 pm**

Board Room, 6th Floor, 625 Fisgard Street, Victoria, BC

M. Lougher-Goodey (Chair)  
G. Baird  
F. Haynes  
R. Kasper  
J. Loveday  
J. Rogers  
L. Szpak  
E. Zhelka

G. Orr (Vice-Chair)  
C. Coleman  
M. Hicks  
Z. King  
T. Morrison  
V. Sanders  
L. Wergeland

R. Atwell  
B. Gramigna  
B. Isitt  
G. Logan  
D. Murdock  
W. Sifert  
G. Young

**AGENDA**

1. Approval of Agenda
2. Adoption of Minutes of September 20, 2017 ..... 1
3. Chair's Remarks
4. Presentations/Delegations
  - No one has registered to speak
5. Water Advisory Committee
  - Verbal Report from the Chair
6. General Manager's Report
  - Nothing to report
7. Recommendations from Other Water Commissions (Hotsheets)..... 5
8. Regional Water Supply - 2017 Strategic Plan (Report #RWSC 2017-30) ..... 6
9. 2018 Service Plans Review Process (Report #RWSC 2017-29)..... 36
10. Regional Water Supply Service - 2018 Operating and Capital Budget..... 103  
(Report #RWSC 2017-26)
11. Greater Victoria Water Supply Area Mining Access Requests  
(Report #RWSC 2017-27) ..... 168
12. 2017 Wildfire Season - Greater Victoria Water Supply Area  
(Report #RWSC 2017-28) ..... 182
13. Water Quality Report for Sooke Lake Reservoir – May-August 2017  
(Report #EEP17-44) ..... 188
14. Water Watch ..... 203
15. New Business
16. Adjournment

*To ensure a quorum, advise Margaret at 250.474.9606 if you or your alternate cannot attend.*



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**MINUTES OF A MEETING OF THE REGIONAL WATER SUPPLY COMMISSION**  
**Held Wednesday, September 20, 2017 in the 6<sup>th</sup> Floor Boardroom, 625 Fisgard Street**

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**PRESENT: Commissioners:**, G. Orr (Chair), G. Baird, W. Vowles (for M. Hicks), C. Coleman, J. Rogers, L. Wergeland, E. Zhelka, F. Haynes, B. Isitt, G. Young, B. Fallot (for M. Lougher-Goodey), R. Kasper, L. Szpak, J. Loveday, V. Sanders, D. Murdock, G. Logan, R. Atwell, B. Gramigna

**Staff:** T. Robbins, R. Lapham, A. Constabel, I. Jesney, M. McCrank, S. Mason, M. Montague (Recorder)

**Guest:** B. Desjardins, CRD Board Chair

The meeting was called to order at 12:30 pm.

**1. APPROVAL OF THE AGENDA**

**MOVED** by Commissioner Gramigna and **SECONDED** by Commissioner Baird, That the Regional Water Supply Commission approve the agenda.

CARRIED

**2. ADOPTION OF THE MINUTES OF JUNE 21, 2017**

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Szpak, That the Regional Water Supply Commission adopt the minutes of the meeting held June 21, 2017.

CARRIED

**3. CHAIR'S REMARKS**

The Chair made the following remarks:

- He introduced B. Desjardins, CRD Board Chair and R. Lapham, CRD Chief Administrative Officer;
- He noted that the Budget Subcommittee met this morning to review the proposed 2018 Capital and Operating Budget.
- He thanked IWS staff for presenting the budget and also thanked the Commission members that attended for their participation.

**4. PRESENTATIONS/DELEGATIONS**

There were no presentations/delegations.

**5. GENERAL MANAGER'S REPORT**

- a) Water Supply Outlook – He noted that there were no issues to report.
- b) Budget Subcommittee – 2018 Budget Review – the budget subcommittee met this morning and their recommendations will be brought to the Regional Water Supply Commission in October for consideration.
- c) Project Updates
  - Japan Gulch Disinfection Plant – the project is nearing completion. Standby power has been installed for UV treatment and testing is complete.

- Main No. 3 at McKenzie Interchange – the existing main has been realigned through the McKenzie Interchange and commissioning is planned for November this year.
- d) Sooke lake Reservoir High TC Event – He reported on the high TC event that occurred in July and continued through August. A public notice was sent out and was posted on the CRD website throughout the entire even. A full report on this event will be brought back to the Commission later this year.
- e) CRD Water Quality Lab Accreditation – He reported that the CRD Water Quality Lab received CALA accreditation, as noted in the letter included in the agenda package.

## 6. CORRESPONDENCE

**MOVED** by Commissioner Baird and **SECONDED** by Commissioner Atwell,  
That the Regional Water Supply Commission receive the correspondence for information.

CARRIED

## 7. RECOMMENDATIONS FROM OTHER WATER COMMISSIONS

**MOVED** by Commissioner Haynes and **SECONDED** by Commissioner Logan,  
That the Regional Water Supply Commission receive the report for information.

CARRIED

## 8. GREATER VICTORIA WATER SUPPLY AREA MINING ACCESS REQUESTS

A. Constabel spoke to the report. She noted that the CRD has received access applications to conduct placer and mineral mining activities on tenures held in the Leech Water Supply Area. Given the applicants' rights to access the Leech Water Supply Area under the *Mineral Tenures Act* and *Mining Right of Way Act*, CRD approval is not required to enable the tenure holder access to the Greater Victoria Water Supply Area however, reasonable conditions may be imposed on access through the CRD's access authorization process.

**MOVED** by Commissioner Kasper and **SECONDED** by Commissioner Isitt,  
That the Regional Water Supply Commission authorize access and special use to the mining tenure holders and accompanying persons listed in Table 1 for the valid mining tenures they hold now and during September 20, 2017 to April 30, 2018, with the conditions required in the Access Agreement.

CARRIED

## 9. NSERC STRATEGIC PARTNERSHIP GRANT – *FORWATER* NETWORK

A. Constabel spoke to the report. She reported that NSERC is providing \$5.5 million in funding to the *forWater*: NSERC Network for Forested Drinking Water Source Protection Technologies. The CRD has the opportunity to be an active Partner in the *forWater* Network to benefit from direct research and knowledge extension relative to the Regional Water Supply System. To maximize benefits and ensure research and extension on topics of interest to the Regional Water Supply System, an annual funding contribution of \$25,000 for 5 years should be made to the Network. The value of direct research and knowledge to be gained through the *forWater* Network is expected to far outweigh the cost of the 5 year direct and indirect funding contribution.

**MOVED** by Commissioner Murdoch and **SECONDED** by Commissioner Zhelka,  
That the Regional Water Supply Commission endorse, subject to final consideration of the 2018 Service Budget, annual supplementary funding from the Regional Water Supply operating budget of \$25,000 per year for 5 years beginning in 2018, to support the *forWater*: NSERC Network for Forested Drinking Water Source Protection Technologies.

CARRIED

**10. REGIONAL WATER SUPPLY SYSTEM DAM OPERATIONS, MAINTENANCE AND SAFETY PROGRAM UPDATE**

T. Robbins spoke to the report. He noted that the Integrated Water Services Department of the Capital Regional District manage numerous dams with the primary purpose related to drinking water supply. The IWS department has a comprehensive dam safety program in place to manage the dams within the legislated framework. It is proposed to evolve that framework with the advice of independent experts and building a robust dam safety management system that will utilize a probabilistic risk-based approach to mitigating dam safety issues.

In general, the dams have performed well, with the exception of Butchart #5 and Lubbe #4 for which there are plans for remediation and regulatory obligations are being addressed. This information provides context for the proposed dam related capital works planned for the 2018-2022 Regional Water Supply budget.

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

CARRIED

Commissioner Gramigna left the meeting.

**11. SUMMARY OF THE 2017 “GET TO KNOW YOUR H<sub>2</sub>O TOURS” – PUBLIC AND SCHOOL TOURS OF THE GREATER VICTORIA WATER SUPPLY AREA AND WATER SUPPLY FACILITIES**

A. Constabel spoke to the report. She noted that the implementation of the 2017 “Get to Know Your H<sub>2</sub>O Tours” - Tours of the Greater Victoria Water Supply Area and Water Supply Facilities met the goals of: delivering a new grade five school tour program; continuing to test a varied tour type and schedule to reach a broader demographic and increase attendance; and delivering the tours on budget with less disruption to operations by changing some of the methods of delivery.

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Baird,  
That the Regional Water Supply Commission receive the staff report for information.

CARRIED

**12. WATER WATCH**

**MOVED** by Commissioner Coleman and **SECONDED** by Commissioner Haynes,  
That the Regional Water Supply Commission receive the report for information.

CARRIED

**13. NEW BUSINESS**

There was no new business.

14. **ADJOURNMENT**

**MOVED** by Commissioner Haynes and **SECONDED** by Commissioner Baird,  
That the Regional Water Supply Commission meeting be adjourned at 1:37 pm.

CARRIED

\_\_\_\_\_  
Chair

\_\_\_\_\_  
Secretary



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**CAPITAL REGIONAL DISTRICT  
JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
Meeting held Tuesday, October 3, 2017**

**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.

**1. 2018 SERVICE PLANS REVIEW PROCESS**

That the Juan de Fuca Water Distribution Commission direct staff to reinstate the Divisional Initiative, titled Disaster Response Plan for Water Supply and Distribution, into the Infrastructure Operations Service Plan.

CARRIED

That the Juan de Fuca Water Distribution Commission receive the staff report, as amended, for information.

CARRIED

**2. RECOMMENDATIONS FROM OTHER WATER COMMISSIONS (HOTSHEETS)**

That the Juan de Fuca Water Distribution Commission receive the report for information.

CARRIED

**3. JUAN DE FUCA WATER DISTRIBUTION SERVICE – 2018 OPERATING AND CAPITAL BUDGET**

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

1. Approve the 2018 Capital Budget and the Five Year Capital Plan;
2. Approve the 2018 Operating Budget;
3. Approve the 2018 Juan de Fuca Water Distribution Service retail water rate of \$2.0739 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

**4. WATER WATCH**

That the Juan de Fuca Water Distribution Commission receive the report for information.

CARRIED

**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, OCTOBER 18, 2017**

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**SUBJECT    REGIONAL WATER SUPPLY - 2017 STRATEGIC PLAN**

**ISSUE**

To present a summary of the public and stakeholder engagement activities conducted to gather feedback on the Regional Water Supply - 2017 Draft Strategic Plan and present the final draft Plan document for Regional Water Supply Commission feedback and approval.

**BACKGROUND**

The draft content for the Regional Water Supply – 2017 Strategic Plan was presented to the Water Advisory Committee (Committee) for review and feedback at the June 7, 2017 meeting. The draft content and the feedback from the Committee was provided to the Regional Water Supply Commission (Commission) for review and feedback at their June 21, 2017 meeting. All of the feedback was considered by Capital Regional District (CRD) staff and where appropriate, the plan content was revised to incorporate feedback prior to finalizing the public and stakeholder engagement materials. This report provides a summary of the communications and public and stakeholder engagement activities conducted to gather feedback on the Regional Water Supply - 2017 Draft Strategic Plan and presents the final draft Plan document (Attachment 1) for Commission feedback and approval.

There were several methods used to engage with the public and stakeholders, summarized as follows:

**Water Advisory Committee - June**

The draft content for the Regional Water Supply - 2017 Strategic Plan was presented to the Water Advisory Committee for review and feedback on June 7, 2017. The Committee provided a written summary of the feedback to CRD staff and the Commission.

**Public Open Houses - July**

During the period of July 3-14, 2017, the CRD held five public open houses to inform stakeholders of the Strategic Plan and gather feedback. The open houses were held in Central Saanich, Saanich, Colwood, and Victoria and were attended by approximately 45 members of the public. At the open houses, attendees had the opportunity to speak with CRD staff about the strategic plan and the Regional Water Supply System in general, and provide feedback verbally and through written feedback forms. Attendees were also advised of the opportunity to provide feedback electronically through the dedicated strategic plan page on the CRD website, which was accessible between July 1, 2017 and September 30, 2017.

### External and Internal Stakeholder Presentations

On September 7, 2017, external stakeholders were invited to attend a presentation of the draft strategic plan material. The presentation was attended by municipal engineering and operations staff, First Nations operations and administrative staff, staff from a privately operated water system, Island Health staff, and First Nations Health Authority staff.

On September 8, 2017, internal CRD stakeholders were invited to attend a presentation of the draft strategic plan material. The presentation was attended by CRD staff representing infrastructure engineering and operations, watershed protection, water quality, demand management, cross connection control, finance, and communications.

Following the presentations, feedback was received directly through comments and through question and answer periods. Attendees were also advised of the opportunity to submit feedback electronically.

### Public Open House – September

As requested by the Commission, a follow-up open house was held on September 14, 2017 at the CRD Centre for Engagement (CRD Fisgard building) to provide another opportunity for the public to provide feedback. An additional information board was prepared to indicate the 'feedback heard to-date'.

### Water Advisory Committee - October

The Water Advisory Committee received a summary of the communications and public and stakeholder engagement activities conducted to gather feedback on the Regional Water Supply - 2017 Draft Strategic Plan and the draft Plan document at their October 12, 2017 meeting for final Committee feedback prior to recommending approval of the Plan to the Commission. The Committee passed the following motion at the meeting:

*That the Water Advisory Committee recommends that the Regional Water Supply Commission approve the Regional Water Supply – 2017 Strategic Plan as presented, with CRD staff's acknowledgement of the comments received at the Water Advisory Committee meeting on October 12, 2017.*

### Communications - Social Media, CRD Website and Print Advertising

The public open house information boards were posted on the CRD website at the beginning of July and, as previously noted, the opportunity to provide feedback electronically through the dedicated strategic plan page on the CRD website was accessible between July 1, 2017 and September 30, 2017.

Targeted Facebook advertisements (Attachment 2) on the CRD Facebook site were used between June 30 – July 10 and the CRD Twitter account was used to tweet 10 messages about the open houses and feedback opportunities.

Print advertisements were placed in the Times Colonist and Black Press newspapers in advance of the July open houses (Attachment 3).

### Public and Stakeholder Feedback

The feedback received has been summarized in Attachment 4. All of the feedback has been reviewed and considered by CRD staff and, where appropriate, the final draft strategic plan document has incorporated the feedback.

### Final Draft Document – Regional Water Supply – 2017 Strategic Plan

The final draft Plan document has been prepared for Commission feedback and approval. The Plan sets Commitments and identifies Strategic Priorities and Actions, with a planning horizon to the year 2050 that will guide the future direction for the Regional Water Supply Service. While the Commitments will likely remain virtually unchanged for decades, it is expected that the Strategic Priorities will be reviewed and updated every 5-10 years and the Actions will be planned, budgeted and implemented over the next 5 years. Progress and outcomes will be tracked and reported annually to the Regional Water Supply Commission and the CRD Board.

## **ALTERNATIVES**

### Alternative 1

That the Regional Water Supply Commission:

1. Approve the Regional Water Supply - 2017 Strategic Plan as presented; and
2. Direct staff to forward the Regional Water Supply - 2017 Strategic Plan to the CRD Board for information and make the Plan available for public distribution.

### Alternative 2

That the Regional Water Supply Commission not approve the Regional Water Supply - 2017 Strategic Plan as presented and refer the document back to staff for revision.

## **CONCLUSION**

Following review of the draft content for the Regional Water Supply – 2017 Strategic Plan by the Water Advisory Committee and the Regional Water Supply Commission in the Spring, the public and stakeholder engagement activities conducted over the Summer and Fall, and in consideration of the feedback received, the draft strategic plan document has been prepared. The vision for the plan was to produce a concise strategic plan that serves as a guiding document for service delivery, and is suitable for public consumption. The plan content centers around the commitments, strategic priorities and actions that are being, or will be undertaken, by the Capital Regional District through the Regional Water Supply Service.

## **RECOMMENDATION**

That the Regional Water Supply Commission:

1. Approve the Regional Water Supply - 2017 Strategic Plan as presented; and
2. Direct staff to forward the Regional Water Supply - 2017 Strategic Plan to the CRD Board for information and make the Plan available for public distribution.

Submitted by:	Ted Robbins, BSc, CTech, General Manager, Integrated Water Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

TR:mm

Attachments:

- 1 – 2017 Draft Strategic Plan for the Greater Victoria Water Supply System (NOTE: The attachment does not reflect the final layout in booklet form - "Booklet" copies will be distributed at the meeting.
- 2 – Online Advertising
- 3 – Print Advertising
- 4 – Public and Stakeholder Feedback



**CRD** | Capital Regional District

625 Fisgard Street  
Victoria, BC V8W 2S6  
250.360.3000

Website: [www.crd.bc.ca](http://www.crd.bc.ca)  
Twitter: @crd\_bc  
Facebook: Capital Regional District

# Regional Water Supply 2017 Strategic Plan

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## Introduction

The Capital Regional District (CRD) supplies drinking water for more than 370,000 people, supporting residential, commercial, institutional, light industrial, agricultural and public safety uses across the Greater Victoria area of Vancouver Island in British Columbia. Greater Victoria is growing and factors affecting water supply continue to change. A safe and adequate supply of drinking water is critical to the livability and sustainability of Greater Victoria. Recognizing this, the CRD is committed to:



Provide high quality, safe drinking water

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Provide an adequate, long-term supply of drinking water

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Provide a reliable and efficient drinking water transmission system

This Strategic Plan for Regional Water Supply sets Commitments and identifies Strategic Priorities and Actions, with a planning horizon to the year 2050, that will guide the future direction for the Regional Water Supply Service. The Strategic Plan will also support CRD Board priorities, provide context for water servicing policy, and align with other CRD strategies and plans.



Sooke Lake Dam

## Context for the Strategic Plan

In 1997, the service authority for Regional Water Supply transferred from the Greater Victoria Water District to the CRD under the Capital Region Water Supply and Sooke Hills Protection Act and Regulation, provincial legislation enacted to establish a new model for the delivery of Regional Water Supply.

The Regulation required the CRD to establish a strategic plan for water supply. The first strategic plan was completed in 1999 and has been reviewed and updated in 2004 and 2012. The previous plans have resulted in the implementation of a number of initiatives in the areas of water conservation, management of the watershed lands, investment in treatment and transmission infrastructure, climate change adaptation, and addressing changing trends in water use.

Moving forward, there will be a periodic review of the Strategic Priorities, and an update of the Actions set out in this plan every five years.



The CRD treats and delivers an average of

**130 million**

litres of water every day.

## Service Governance & Stakeholders

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

The Regional Water Supply Commission is a body of 22 elected officials who represent and provide political leadership and decision making on behalf of the local authorities that receive water supply service. The Water Advisory Committee is the public advisory committee that provides advice to the Commission on matters related to the service including water supply, water quality, water conservation and stewardship of the water supply area lands.

There are many stakeholders involved in the supply and delivery of safe drinking water, each with specific roles and responsibilities.

Some of the key stakeholders are:

### Canada

The Guidelines for Canadian Drinking Water Quality, published by Health Canada, set out the basic microbiological, chemical and radiological parameters and the physical characteristics, such as taste and odour, that water systems such as the Regional Water Supply System strive to achieve in order to provide the cleanest, safest and most reliable drinking water possible.

### Province of British Columbia

The provincial Public Health Act and Regulation sets out the role and powers of health



The Regional Water Supply service provides bulk water to the municipalities listed below and the CRD, who operate water distribution systems that deliver water directly to customers across Greater Victoria.

- District of Central Saanich
- District of North Saanich
- District of Oak Bay
- District of Saanich
- Town of Sidney
- City of Victoria/Township of Esquimalt
- CRD Juan de Fuca Water System (Serving Town of View Royal, City of Colwood, City of Langford, District of Metchosin, District of Highlands, District of Sooke, East Sooke in the Juan de Fuca Electoral Area, Beecher Bay First Nation, Esquimalt First Nation, Songhees First Nation, T'Souke First Nation)

officials and the requirements for planning, reporting and regulation of activities that may affect public health, including the provision of drinking water. The Public Health Act works in concert with the Drinking Water Protection Act and Regulation which pertains specifically to drinking water supply and protection requirements. The CRD also meets the requirements of the Water Sustainability Act which sets out requirements to ensure a sustainable supply of fresh, clean water that meets the needs of BC residents today and into the future.

### Island Health

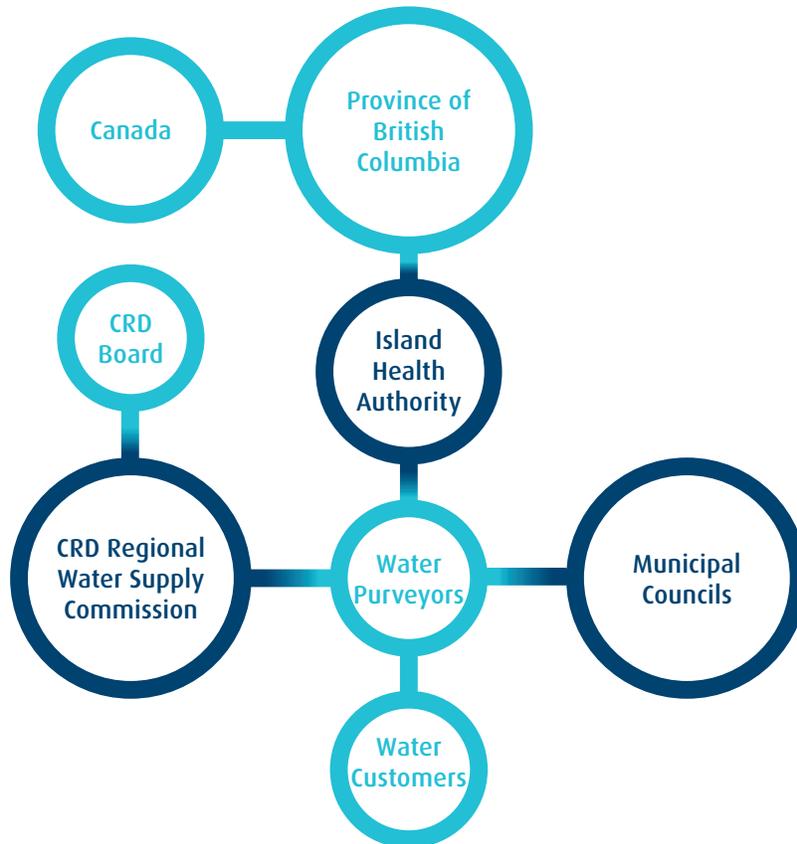
Island Health is the Vancouver Island Health Authority that administers and enforces the applicable provincial legislation through water system operating permits. The CRD holds operating permits with Island Health for the Regional Water Supply System and regularly reports drinking water quality information to Island Health.

### Water Purveyors

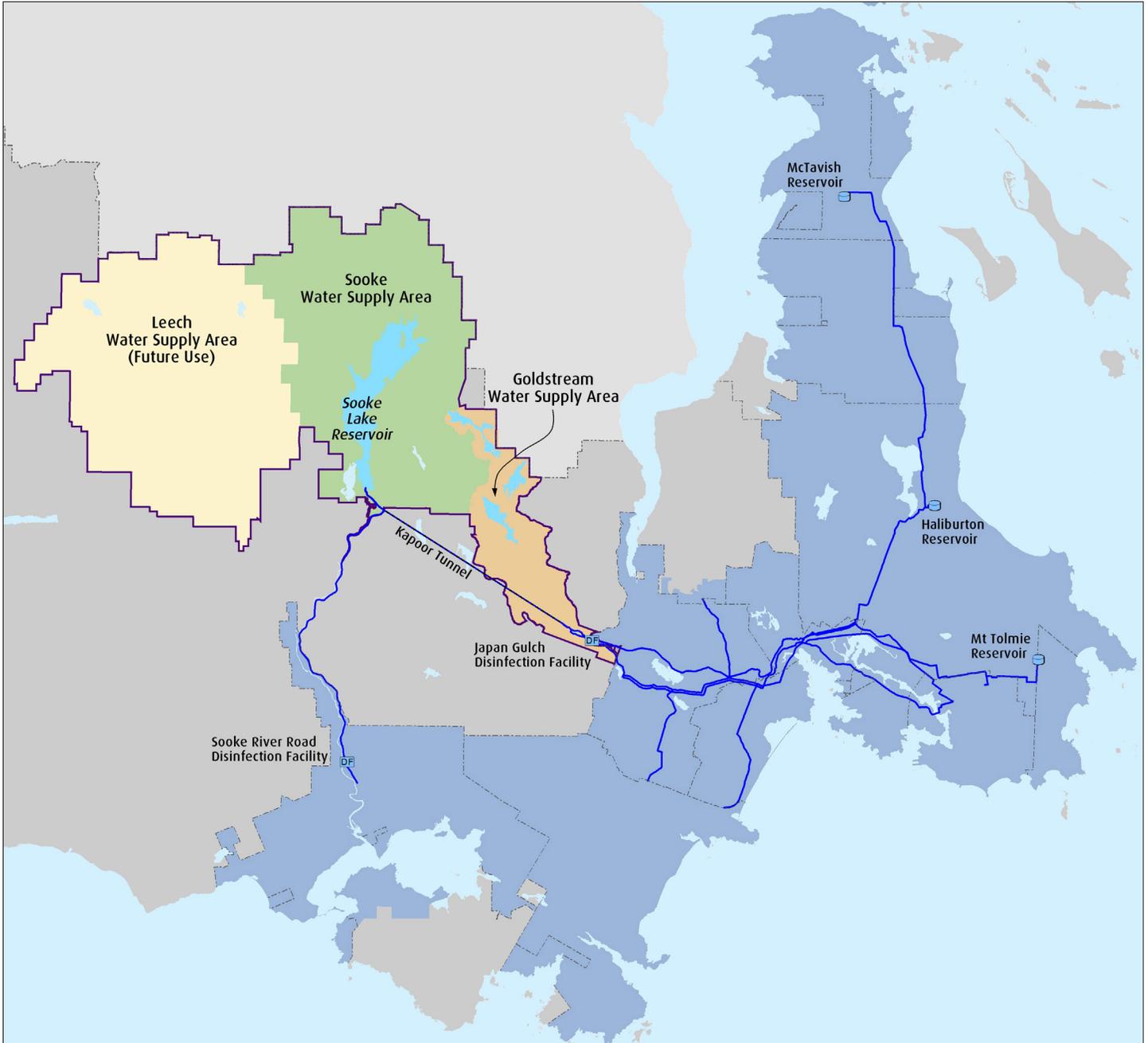
The CRD, municipalities and First Nations in the Region own and operate water systems that receive water from the Regional Water Supply Service, then distribute water directly to water customers. Water purveyors are responsible for the provision of safe drinking water as well as managing all other aspects of the distribution system.

### Water Customers

All water customers connected to a public water system are responsible for ensuring that the public system is not exposed to any contamination that could be introduced through private water plumbing systems by cross connection or backflow, and for using water responsibly, particularly when using water for discretionary purposes, to assist with management of the Region’s water supply.



# Regional Water Supply System



**Regional Water Supply System – Serving Greater Victoria**

Regional Water Supply Area:

**20,549** HECTARES OF PROTECTED DRINKING WATER CATCHMENT LANDS

- Primary Supply Source: Sooke Lake Watershed & Reservoir
- Secondary Supply Source: Goldstream Watershed & Reservoir System
- Future Water Supply Area: Leech Watershed

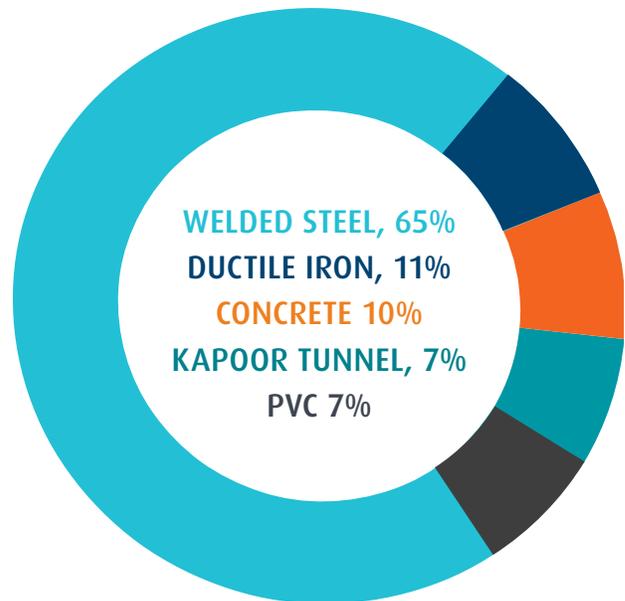
Water Treatment

- Unfiltered Source Water
- Primary Disinfection:
  - Ultraviolet light – targets parasites
  - Free chlorine – targets bacteria and viruses
- Secondary Disinfection:
  - Ammonia to produce chloramine – long lasting disinfectant



Water Transmission Mains

- 130 km of pipe and tunnel, size range: 400mm – 2,134mm in diameter
- Pipe construction and materials:



Bulk Water Supply Points to water distribution systems

**187** POINTS

# The Regional Water Supply Strategic Plan Overview

This update of the Strategic Plan for Water Supply sets out the Commitments, Strategic Priorities and Actions for the Regional Water Supply Service.

## Commitments

There are three key water supply Commitments the CRD makes today and into the future. These long term Commitments are foundational to the plan and to achieving the service authority and mandate. The Commitments are expected to remain virtually unchanged for decades.

## Strategic Priorities & Actions

Each Commitment has supporting Strategic Priorities and Actions which will guide shorter term initiatives as well as service planning and delivery. It is expected that Strategic Priorities would be reviewed and updated every 5-10 years and Actions would be planned, budgeted and implemented over the five-year cycle.

## Planning Horizon

The planning horizon for the development of the plan is to the year 2050 based on the following considerations:

- 2050 is the projected earliest date that the Leech Water Supply Area may be required to supplement the Sooke Lake Reservoir to meet regional water supply demand based on higher population growth rate projections
- Water supply system components can have a useful life as short as 15 years and as long as 80 years or more
- Approximately 30 years from now strikes a balance with what can reasonably be planned considering the projected water supply needs of the Region and other factors such as climate change and advances in technology, while looking far enough ahead to allow informed decision making regarding key infrastructure and financial decisions

## Areas of Focus

There are six areas of focus that emerge from the Strategic Priorities and Actions that will influence operational, capital and financial aspects of the Regional Water Supply Service over the next five years and beyond. The six areas of focus are:



### **CRD BOARD PRIORITIES – SUSTAINABLE AND LIVABLE REGION**

The current CRD Board Strategic Priorities include 12 priority areas and 51 strategic priorities, which support a vision for a sustainable, livable, vibrant, collaborative and service oriented Region. In addition, the CRD has identified corporate and core service priorities - the Drinking Water and Regional Infrastructure priority areas directly relate to Regional Water Supply and the importance of the service in supporting a sustainable and livable region. The Regional Water Supply Commission supports these priority objectives.



### **CLIMATE CHANGE IMPACTS – MITIGATION AND ADAPTATION**

Preparing for and mitigating or adapting to climate change will be necessary in the Capital Region. In the years to come, it can be expected that there will be warmer winter temperatures, more extreme hot days and longer dry spells in the summer, more precipitation in fall, winter and spring and more intense, extreme weather events. All of these weather changes can have an impact on water supply, water quality and the health and resilience of forests in the watersheds. The CRD will respond to the climate change challenges by integrating climate change implications into risk register and infrastructure management decision making and plans.



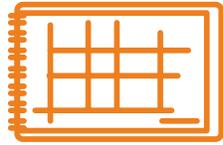
### **PREPARING FOR EMERGENCY AND POST-DISASTER WATER SUPPLY**

Planning and preparing for the potential impacts of a destructive earthquake and other natural disasters on regional and municipal infrastructure is a priority for the CRD and municipal partners. Water supply and distribution in a post-disaster situation is a key aspect of regional emergency planning. Furthering infrastructure resiliency, coordinating emergency planning with other local governments and senior governments, and preparing for emergency water supply and distribution are priorities.



### **SUPPLY SYSTEM INFRASTRUCTURE INVESTMENT – RENEWING EXISTING AND PREPARING FOR NEW INFRASTRUCTURE**

Infrastructure renewal is an integral component of the management of the Regional Water Supply System. The goal is to ensure that water supply infrastructure is replaced or upgraded prior to the end of its projected service life to ensure the system performs reliably, while maximizing the service life of the assets. Planning for new infrastructure related to water treatment requirements, to meet water supply and demand capacity expectations, and to address redundancy and seismic resiliency will be a priority.



### **PLANNING FOR THE FUTURE USE OF THE LEECH WATER SUPPLY AREA**

The Leech Water Supply Area (LWSA) was acquired by the CRD in 2007 as the future water supply area for the Regional Water Supply System. The LWSA will serve as an additional water catchment area that will provide more water runoff into the Sooke Lake Reservoir when it is brought into service. Although the actual year the LWSA will be required will be subject to changing water demand and climate change impacts, as well as actual population growth rates, it is estimated that the LWSA will not be required to supplement the Sooke Lake Reservoir storage volumes until around 2070 with a moderate population growth projection or as early as around 2050 with a higher population growth rate projection. To prepare for the eventual use of the LWSA, further work is required to plan for the water quality impacts of the different raw water sources, rehabilitation of the water supply area forests and drainage structures, and infrastructure necessary to convey the LWSA flows into Sooke Lake Reservoir.



### **DEMAND MANAGEMENT - ADDRESSING CHANGING TRENDS IN WATER DEMAND**

It is expected that the trend of declining per capita water demand across the Capital Region will continue at a rate of approximately 1% per year over the next 10 years. The declining demand is largely related to declining indoor demand resulting from ongoing household conversions to low flow fixtures and high efficiency appliances, as well as declining outdoor demand as public attitudes and behavior towards discretionary outdoor water use change. However, it remains a priority to achieve a further reduction in per capita water use in order to defer the need to build water supply, treatment and transmission capacity in the supply system, until it is necessary to support population growth. Water conservation and understanding the value of water will continue to be key elements of demand management.



### COMMITMENT:

Provide high quality, safe drinking water

#### 1 Manage and protect the Greater Victoria Water Supply Area (GVWSA).

- Continue to actively protect the GVWSA and water supply infrastructure from unauthorized activities and seek opportunities to acquire ownership and control of the remaining catchment lands and critical adjacent lands to act as a buffer.
- Reduce risk to water supply and ecosystems from contaminants and invasive plants, animals and pathogens by completing a biosecurity risk assessment and implementing biosecurity mitigation measures.
- Implement the recommendations of the GVWSA climate change adaptation initiatives to reduce the impact of the potential types, magnitude and rate of climate change on GVWSA ecosystems, water quality and infrastructure.
- Assess the need for more active forest management to protect and enhance forest health and resilience.
- Reduce risk of landscape level wildfire by designing and implementing forest fuel management treatments.



47.6M m<sup>3</sup>

of drinking water was delivered in 2016 through the regional water supply system



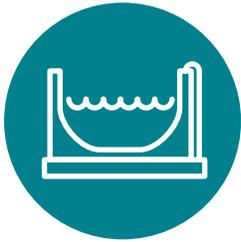
CRD Water Quality Laboratory

## 2 Maintain a multi-barrier approach to drinking water quality protection.

- Continually evaluate the effectiveness of the water treatment processes.
- Use the Regional Water Supply Service drinking water safety plan in operational and capital project decision making.
- Continue to develop and refine the Utility Operator Training Program and ensure adherence to Environmental Operator Certification Program requirements.
- Identify and implement progressive and innovative training and development opportunities with respect to utility operations and management for departmental staff.

## 3 Maintain a risk register for the Regional Water Supply System that identifies potential risks to water quality, water supply and water transmission and provide mitigation and adaptation measures.

- Regularly review Regional Water System hazards, risks and vulnerabilities and update the risk register.
- Continue the emphasis on wildfire prevention, early detection and suppression capability, preparedness, forest fuel management and post-fire rehabilitation planning to reduce and mitigate the risk of a large-scale wildfire affecting the water supply area and source water quality.
- Continue to monitor and evaluate the implications of the reliance on unfiltered source water and the absence of a filtration step in the water treatment process.
- Conduct specific seismic risk evaluations of critical assets.



## COMMITMENT:

# Provide an adequate, long-term supply of drinking water

## 1 Plan and prepare for future water supply needs to meet demand considering impacts of climate change, population growth, and per-capita demand rates.

- Evaluate climate change impacts and risks on water supply and incorporate mitigation and adaptation recommendations in operating and capital plans.
- Update service population and service population growth rate forecasts with current census data, considering municipal Official Community Plan land use and population directions, to estimate growth related water demand.
- Establish long-term per capita demand rate projections and Demand Management Program objectives to achieve rates and determine annual water demand by sector.
- Undertake regular monitoring and assessment of the physical, chemical, and biological parameters of the Leech Water Supply Area (WSA) source water and determine a plan to address potential water quality, ecological and ecosystem implications at Sooke Lake Reservoir resulting from diversion of Leech WSA source water (Leech River water) to Sooke Lake Reservoir (ie. combining source waters).
- Develop a plan to undertake more 'intensive' monitoring of Leech River water quality to inform treatability recommendations and long term treatment strategy.
- Determine conceptual 'hard' capital infrastructure plan to design and construct the necessary infrastructure to divert Leech WSA flows to Sooke Lake Reservoir.
- Conduct a feasibility study to explore the design and construction of supply and transmission infrastructure at Sooke Lake Reservoir to provide increased resiliency, including consideration of a deep northern intake and a secondary transmission pipe between the reservoir and the treatment facilities.
- Undertake biannual Supply System hydraulic modelling to confirm system capacity.



Jarvis Lake in the Leech Water Supply Area

## 2 Develop a higher level of public understanding of the drinking water supply system and value of water through education and engagement.

- Continue to improve Regional Water Supply service and system information available to the public through a variety of media streams, to raise awareness around specific topics including water supply and conservation, and supply infrastructure investment.
- Continue to promote the value of the drinking water resource through Water Supply Area public and school tours and other outreach.
- Continue to have two-way dialogue with the Water Advisory Committee regarding water supply matters.
- Explore opportunities for mutually beneficial collaborative partnerships to carry out research and monitoring initiatives in the water supply area and across the system.



# 9,628

Hectares of protected catchment lands within the Leech Water Supply Area acquired in 2007 for future drinking water supply area.



## COMMITMENT:

# Provide a reliable and efficient drinking water transmission system

## 1 Maintain a capital planning process and appropriate investment in Water Supply infrastructure to ensure reliable system performance

- Complete a short term (annual and 5-year), medium term (5-10 year), long term (10-20 year) and long range (20-50 year) asset management plan – informed by asset condition and remaining service life assessment, water operation and maintenance history, water audit, changing regulatory requirements, Hazard, Risk and Vulnerability Assessment (HRVA) recommendations, and system capacity requirements.
- Explore Regional Water Development Cost Charges to fund future growth related supply system infrastructure improvements.
- In collaboration with municipal and First Nations water purveyors, establish water supply service agreements.

## 2 Continually review cost effectiveness of service respecting operations and maintenance and capital investment decisions.

- Continue to review reactive, preventive and predictive operations and maintenance history and confirm operation and maintenance service levels for the Regional Water Supply Service that consider best practices and reliability centered maintenance approach.
- Consider life cycle costs with new infrastructure design and asset replacement.
- In asset replacement decisions, balance maximizing infrastructure service life with infrastructure reliability.
- Optimize capital investment taking into consideration priority, annual and long term budget and water rate impacts and resource availability to deliver the projects.



Japan Gulch Ultraviolet Disinfection Plant

### 3 Develop and manage emergency bulk drinking water supply systems for Greater Victoria.

- Establish emergency and post-disaster water supply protocols and obtain necessary supplies, materials and equipment to implement protocols. Establish water purveyor support roles and responsibilities in emergency water supply and distribution.
- Outline how an emergency/post disaster drinking water supply can be supported by regional emergency management plans and available senior government supports under certain conditions.

### 4 Continue to focus on retaining and recruiting experienced and professional employees responsible for the Regional Water Supply System engineering, system operation and maintenance, and management of the water supply area.

- Develop a succession plan to ensure key positions are backfilled by experienced and knowledgeable employees, and that system knowledge is preserved.
- In alignment with CRD organizational development initiatives, provide learning and development opportunities for employees.



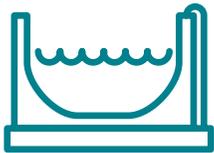
Over \$130 million has been invested in supply system infrastructure renewal since 1995.

## Commitments



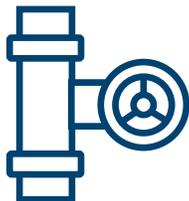
Provide high quality, safe drinking water

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Provide an adequate, long-term supply of drinking water

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Provide a reliable and efficient drinking water transmission system

## Advancing the Strategic Plan

A safe and adequate supply of drinking water is critical to the livability and sustainability of Greater Victoria and the Capital Region. The Greater Victoria area is fortunate to have a well established water supply system and a climate that has allowed for the replenishment of source water.

The Commitments outlined in the Plan will ensure that the CRD continues to provide clean, safe, reliable drinking water to the communities we serve. The Strategic Priorities and Actions will guide service planning and delivery over the coming years. The CRD will be responsive to factors affecting the uncertainty of water supply, such as climate change and future water demand, while ensuring the long term Commitments to our customers remain our priority.

Progress and outcomes will be tracked and reported annually to the Regional Water Supply Commission and the CRD Board to ensure the ongoing achievement of the Commitments, Strategic Priorities and Actions in the Strategic Plan.

The photos in this document were taken within the boundaries of the Capital Regional District, and we wish to acknowledge Helen Cyr whose work is featured here.

## Online Advertising

## Targeted Facebook Ads

**Capital Regional District**  
Sponsored ·

Attend an open house and learn how the CRD plans to provide an adequate, long-term supply of high quality, safe drinking water

**Regional Water Supply System Strategic Plan**  
Attend an open house. Talk to staff. Respond online.

CRD.BC.CA [Learn More](#)

62 Reactions 9 Comments 27 Shares

Like Comment Share

Reach: 22, 547 people

Link Clicks: 371

Post Comments: 10

Post Shares: 27

Page Likes: 62

Demographics: majority of engaged stakeholders were between the ages of 55-65+

## Sample Tweet

Climate change and wildfire can impact the Greater Victoria Water Supply Area. Learn how we plan to manage [#crdwater](#) [www.crd.bc.ca/waterplan](http://www.crd.bc.ca/waterplan).

## Print Advertising

Capital Regional District **CRD**

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## Public Open Houses: 2017 Strategic Plan for the Greater Victoria Water Supply System - Regional Water Supply Service

The Capital Regional District is hosting a series of open houses on the long-term management of the Regional Water Supply System serving the Greater Victoria area.

Learn about the supply of high quality drinking water and provide feedback on the Draft 2017 Strategic Plan by attending any of the following open houses:

**Saanich Peninsula – Central Saanich Fire Hall**  
1512 Keating Cross Rd, Saanichton, BC  
Wednesday, July 5 from 5 to 7pm

**Saanich – Greek Society Community Hall**  
4648 Elk Lake Drive, Victoria, BC  
Thursday, July 6 from 5 to 7pm

**Victoria – CRD Centre for Engagement**  
#2 – 1649 Government Street, Victoria, BC  
Tuesday, July 11 from 2 to 4pm

**Victoria – CRD Centre for Engagement**  
#2 – 1649 Government Street, Victoria, BC  
Wednesday, July 12 from 5 to 7pm

**Westshore – Juan de Fuca Rec Centre**  
1967 Island Highway, Colwood, BC  
Thursday, July 13 from 5 to 7pm

To learn more, please visit [www.crd.bc.ca/waterplan](http://www.crd.bc.ca/waterplan) or call 250.474.9666.



### Public and Stakeholder Feedback

#### Open House, Internal and External Stakeholder Feedback

Adapting to climate change is a major challenge. Warmer temperatures and less rainfall could restrict supply of water in future. Having access to Leech River Supply in future is a valuable asset. Lessons should be learned from areas already severely impacted by drought, such as California as to how to reduce evaporation from reservoirs. Continued population growth in region however means other innovation should be considered. New and existing multi-residential building should be further encouraged to capture rainfall for rooftop gardens.

There is no such place as Greater Victoria. It is CRD or each municipality. Shame on the CRD for printing that.

Most important to me is that the water supply system is kept in public hands. No involvement of private companies please.

CRD has to work with Province to provide more public recreation land west of Sooke or the pressure will continue to open the Leech. But the Leech is becoming increasingly valuable as the only large protected area where the forest can regenerate and the wild life retreat. Better land management west of Sooke.

Excellent water quality – let community know all the CRD does to deliver safe, clean drinking water! Use TV as a media to reach more people with IWS messages.

Hello, I stopped in to view the new strategic plan. We are very interested in your planned expansions. I am speaking for the people who line in the District of Sooke who live between Connie Rd and Ludlow Rd. It shows on your water supply map that we are provided CRD water. This map needs to be corrected since the CRD does not supply us water. We would very much like to be supplied water by the CRD since many of us have wells which run dry in the summer and fall. I will try to reach people in CRD Water Engineering to discuss this further. I believe there are quite a few feasible options to provide water to our area. You are welcome to contact me as well. (contact info provided and on file).

Amalgamate all Water Departments (Oak Bay, Saanich, Victoria etc.) for better quality and consistency, planning main replacement. Enhance Water Conservation programs to include irrigation rebates, community outreach dedicated to water conservation, water quality, IWS profile/issues etc. Residential WC and ICI/WC in one unit, not split up. Reorg to put Water Conservation unit back with IWS. Be specific with objectives of Water Conservation Program (defer costly infrastructure expansion, reduce per capita etc.) Educate and heighten awareness of IWS services, climate, cost of water so reasonable vs. municipality add on costs, relationship between IWS and municipalities. Much confusion regarding m3 units, gallon in water bills – need to have consistency in billing to all customers across the region (same unit of measure and billing periods). Communications of WC and IWS need to be coordinated and consistency of messaging - IWS Communications Coordinator and Water Conservation Coordinator.

We live at 61 Durrance Road in Saanich and will like to request your consideration to bring city water along our street. We think this is a reasonable request considering that the recent very dry summers has strained the private well reserves in our area where we are agriculturally zoned and dependent on requiring reliable water supply. I'd like to point out that many rural streets in Central Saanich, farther out from the city are surprisingly on city water service and wonder why the CRD and Saanich a much larger and wealthier municipality, can not provide the same level of service to its rural citizens.

Also, with the recent announcement of the Residual Treatment line coming along West Saanich Road to Wallace Drive to Willis Point, may Saanich please consider using this opportunity to bring these much needed services to our neglected rural area? May you consider bringing us city water to our rural road? May CRD consider this as we will be inconvenienced heavily due to likely road blockages etc during the construction of this residual treatment line for a system that at this point does nothing to help our community?

I recently attended an CRD Open House in regards to the 2017 Water Strategic Plan and while that was very informative (disappointed that very few citizens attended) I have some comments about our future water supply. CRD staff informed us about the purchase of additional water supply at Leech Lake which was an excellent purchase but when the graph showed that 370,000 in Victoria and vicinity are using the Sooke Reservoir presently it only has capacity of 500,000 users and I fear that our overdevelopment of Victoria and municipalities will reach that number in no time. I asked about saying NO to developments like Royal Bay that will only add to the Colwood Crawl and the major congestion on the Malahat but the CRD staff said that was in Colwood's municipal plan and that it just automatically goes ahead. 7000 more residents in their plan

When does the CRD and the Water Advisory Board have authority to curtail developments which will affect our Drinking Water Supply?

Even with Leech Lake being a back-up plan do we have to just keep relying on water being there for everyone with an unexpected population growth! and of course Winter Rain droughts are being taken into account by the CRD but it is alarming with two major cities right now being affected by winter droughts - Rome and Capetown, South Africa water rationing whom rely on rain water to drink and use like us in the Capital Region!

I love our Victoria drinking water - excellent quality and enough for the population we have now? How do we predict the future with unpredictable climate change and Overpopulation Growth?

"Is filtration included in the Strategic Plan? Is water temperature alone a reason for filtration?"

"What is the role of the First Nations Health Authority in relation to governance of water quality?"

"What security differences between the Leech watershed and Goldstream watershed?"

"What role does the Cross Connection Control program have in the Strategic Plan?"

"When does the CRD and the Water Advisory Board have authority to curtail developments which will affect our Drinking Water Supply?"

"We live in Saanich and will like to request your consideration to bring city water along our street. We think this is a reasonable request considering that the recent very dry summers has strained the private well reserves in our area where we are agriculturally zoned and dependent on requiring reliable water supply. I'd like to point out that many rural streets in Central Saanich, farther out from the city are surprisingly on city water service and wonder why the CRD and Saanich a much larger and wealthier municipality, can not provide the same level of service to its rural citizens.

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#### Facebook Ad Comments

The plan is, the public cuts back on water consumption, their bottom line goes down, so they raise the price of water. Result? You use less water but pay more than you did before when you used more.

Come and hear how they plan to block public access to the area around the Leech River for 30 years just in case they might use it in 2050.

And raise rates again to cover it. Therefore ensuring bonuses for the management for an increase in income.

Hard to believe....  
and price higher than wine certainly.  
All CRD does is waste money & increase bureaucracy.

Thank God for our lovely untreated well water. Pure! No additives.

All based on the earths current water cycles which are already changing and becoming unpredictable.

Gulf Island plans?

**REPORT TO THE REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, OCTOBER 18, 2017****SUBJECT 2018 SERVICE PLANS REVIEW PROCESS****ISSUE**

All departments of the Capital Regional District (CRD) are currently working on 2018 financial plans, to be presented to the Committee of the Whole in November. The financial planning process begins with service plans, which establish the work plans over a four year cycle; the current service plans cover 2016 through 2019. This cover report is developed to provide information on the planning process to all Standing Committees and various Commissions reviewing the service plans.

**BACKGROUND**

Reporting on the service and financial planning process began with a report to the September 6, 2017, Finance Committee, which provided a high level overview of organizational service planning and the themes that were prevalent thus far in the 2018 budget process (Appendix A).

The planning cycle is aligned with the four-year election cycle and includes multi-year budgets to establish a longer-term focus regarding the allocation of resources required to deliver the programs and services needed by the community, and to accomplish Board priorities.

Guided by the Board's strategic priorities, staff have developed multi-year service plans. Service plans outline core service information including key service drivers such as trends and assumptions, service levels, workforce considerations, and performance measures. These plans also highlight divisional initiatives and implications for the overall work program and budget for a specific area. This iterative process is intended to provide staff with an effective planning tool to deliver their work efficiently and enable the committees to assess proposed service levels and the implications of new initiatives. The presentation of service plans to the appropriate committee and commissions allows for a more detailed assessment of service delivery and programs. This process provides committees and commissions the opportunity to review work programs and recommend service level adjustments and/or initiatives. All adjustments and/or initiatives have been vetted organizationally with a focus on identifying opportunities to realign or reallocate resources and identify potential synergies or efficiencies between departments and services. Options to reduce service levels have also been reviewed as part of the service planning process.

Service plans drive the financial planning process and provide necessary information to evaluate overall organizational requirements, new initiatives, proposed service levels and implications for the budget and financial plan. Service plans are presented on an annual basis to all standing committees and commissions.

Under Board direction, the presentation of budgets is segregated between the Electoral Area Services Committee (EASC) or service commissions with delegated authority and the Committee

**Regional Water Supply Commission – October 18, 2017  
2018 Service Plan Review Process**

2

of the Whole in November. The EASC and/or the service commissions are responsible for reviewing and recommending approval to the Board for electoral area-only service budgets on November 1, 2017, while regional and sub-regional service budgets will be presented to the Committee of the Whole on November 29, 2017. Ultimately, the Board is responsible for approval of all of the service budgets.

**ALTERNATIVES**

*Alternative 1*

That the Regional Water Supply Commission recommend to the Capital Regional District Board:  
That the attached service plans be approved as presented.

*Alternative 2*

That the Regional Water Supply Commission recommend to the Capital Regional District Board:  
That the attached service plans be approved as amended.

**IMPLICATIONS**

2018 Financial Plans are being completed and will be presented for review and approval at the EASC and Committee of the Whole meetings in November. The Financial Plan will reflect the results of the committee review of service plans. The budget planning cycle is linked to the statutory five year financial plan which shows the planned contribution of operating revenue required to fund proposed capital projects together with planned borrowing and anticipated grants. The financial plan is developed to ensure consistency and alignment with the legislative authority of the various CRD services which, upon approval, provide the expenditure authority for the operations of the CRD.

Service plans being presented for approval are attached and outline additional resources required by department. Appendix B is a summary of additional FTE's being proposed and outlines the position and the source of funding.

**CONCLUSION**

The service and financial planning process are integral to providing ongoing service delivery. Departments have prepared service plans for presentation to the appropriate standing committee to provide a more detailed assessment and knowledge of service delivery and programs.

**RECOMMENDATION**

That the Regional Water Supply Commission recommend to the Capital Regional District Board:  
That the attached service plans be approved as presented.

Submitted by:	Ted Robbins, BSc, CTech, General Manager, Integrated Water Services
Concurrence:	Nelson Chan, MBA, CPA, CMA, Chief Financial Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

AD/TR:mm

Attachments:

Appendix A: 2018 Service Plan Summary Discussion report (September 6, 2017)

Appendix B: Service Plans Summaries

Appendix C: Service Plans

1. Infrastructure Engineering
2. Infrastructure Operations
3. Watershed Protection
4. Customer and Technical Services

**Appendix A****REPORT TO THE FINANCE COMMITTEE  
MEETING OF WEDNESDAY, OCTOBER 4, 2017**

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**SUBJECT 2018 Service Plans Review Process****ISSUE**

All departments of the Capital Regional District (CRD) are currently working on 2018 financial plans, to be presented to the Committee of the Whole in November. The financial planning process begins with service plans, which establish the work plans over a four year cycle; the current service plans cover 2016 through 2019. This cover report is developed to provide information on the planning process to all Standing Committees and various Commissions reviewing the service plans.

**BACKGROUND**

Reporting on the service and financial planning process began with a report to the September 6, 2017, Finance Committee, which provided a high level overview of organizational service planning and the themes that were prevalent thus far in the 2018 budget process (Appendix A).

The planning cycle is aligned with the four-year election cycle and includes multi-year budgets to establish a longer-term focus regarding the allocation of resources required to deliver the programs and services needed by the community, and to accomplish Board priorities.

Guided by the Board's strategic priorities, staff have developed multi-year service plans. Service plans outline core service information including key service drivers such as trends and assumptions, service levels, workforce considerations, and performance measures. These plans also highlight divisional initiatives and implications for the overall work program and budget for a specific area. This iterative process is intended to provide staff with an effective planning tool to deliver their work efficiently and enable the committees to assess proposed service levels and the implications of new initiatives. The presentation of service plans to the appropriate committee and commissions allows for a more detailed assessment of service delivery and programs. This process provides committees and commissions the opportunity to review work programs and recommend service level adjustments and/or initiatives. All adjustments and/or initiatives have been vetted organizationally with a focus on identifying opportunities to realign or reallocate resources and identify potential synergies or efficiencies between departments and services. Options to reduce service levels have also been reviewed as part of the service planning process.

Service plans drive the financial planning process and provide necessary information to evaluate overall organizational requirements, new initiatives, proposed service levels and implications for the budget and financial plan. Service plans are presented on an annual basis to all standing committees and commissions.

Under Board direction, the presentation of budgets is segregated between the Electoral Area Services Committee (EASC) or service commissions with delegated authority and the Committee of the Whole in November. The EASC and/or the service commissions are responsible for

reviewing and recommending approval to the Board for electoral area-only service budgets on November 1, 2017, while regional and sub-regional service budgets will be presented to the Committee of the Whole on November 29, 2017. Ultimately, the Board is responsible for approval of all of the service budgets.

### **ALTERNATIVES**

#### *Alternative 1*

That the Finance Committee recommend to the Capital Regional District Board:  
 That the attached service plans be approved as presented.

#### *Alternative 2*

That the Finance Committee recommend to the Capital Regional District Board:  
 That the attached service plans be approved as amended.

### **IMPLICATIONS**

2018 Financial Plans are being completed and will be presented for review and approval at the EASC and Committee of the Whole meetings in November. The Financial Plan will reflect the results of the committee review of service plans. The budget planning cycle is linked to the statutory five year financial plan which shows the planned contribution of operating revenue required to fund proposed capital projects together with planned borrowing and anticipated grants. The financial plan is developed to ensure consistency and alignment with the legislative authority of the various CRD services which, upon approval, provide the expenditure authority for the operations of the CRD.

Service plans being presented for approval are attached and outline additional resources required by department. Appendix B is a summary of additional FTE's being proposed and outlines the position and the source of funding.

### **CONCLUSION**

The service and financial planning process are integral to providing ongoing service delivery. Departments have prepared service plans for presentation to the appropriate standing committee to provide a more detailed assessment and knowledge of service delivery and programs.

### **RECOMMENDATION**

That the Finance Committee recommend to the Capital Regional District Board:  
 That the attached service plans be approved as presented.

Submitted by:	Amber Donaldson, MA, CPA, CMA, A/Senior Manager, Financial Services
Concurrence:	Nelson Chan, MBA, CPA, CMA, Chief Financial Officer
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

AD:ngm

Attachments:

Appendix A: 2018 Service Plan Summary Discussion report (September 6, 2017)

Appendix B: Budget 2018 Proposed FTE Additions

Appendix C: Service Plans Summaries

Appendix D: Service Plans

1. Asset and Risk Management
2. Financial Services
3. Information Technology & GIS
4. Executive Office, Legislative & Corporate Services, Board and Elections
5. Corporate Communications
6. First Nations Relations Division
7. Human Resources and Organizational Development
8. Real Estate Services

## SERVICE PLAN UPDATE SUMMARY – 2018

**SERVICE NAME:** Infrastructure Engineering

***Changes in Assumptions, Trends, and Other Issues since 2017:*** (linked to section 1.3 and 1.4 of the detailed service plan)

The following are 3 major changes that are currently impacting service delivery:

**Juan de Fuca Water Engineering and Planning**

- This service is currently rolled up into Water Engineering and Planning and is serviced by a part-time manager (shared by Regional Water and local services). Prior to 2012, this group had a staff of 4 people, including a full time manager, a support engineer and two technical support staff. The service delivery was also restricted to the Juan de Fuca water (JDF) system only. It is recommended that the service be staffed by a full-time manager (also functions as review engineer), three technical support staff, and an administrative support person. Reasons for the change are:
  - The group now provides referral support services (both sewer and water) to all local services on the Southern Gulf Islands, as well as Port Renfrew.
  - The JDF system has grown dramatically over the past few years as growth in the West Shore communities has increased and is expected to continue to increase. This has resulted in increased referrals and development application reviews.
  - Additions to the JDF system have also become more complex due to the terrain now being developed with an increase in both reservoirs and pump stations. This results in more time being required to review technical submissions.
  - The software system that supports the service property and development data is no longer supported and the service is being changed over to new software (Tempest) that will require vast amounts of data entry to convert and ongoing data upkeep. There is also currently no front desk administrative support resulting in technical staff conducting filing and other administrative duties.
- To staff this service as suggested will require the addition of a management FTE (repurposed from elsewhere in IWS) as well as a FTE for the administrative support position.

**Dam Safety (for all dams associated with CRD drinking water services)**

- The dam safety function is currently provided in Water Engineering and Planning and provides service to all dams that are for the use of water provision, both regionally and for local services. Increased oversight by provincial regulators is resulting in more studies, designs, construction being carried out and resultant actions required to meet regulatory obligations. This results in increased funding for both operational and capital budgets. There is not a requirement for additional staff at this time since part of the current manager's time, which is allocated to the JDF system, will be available.

**Wastewater Engineering and Planning**

- This service currently serves the Core Area, Saanich Peninsula and local services as well as major project and technical support to Salt Spring Island. Staffing dedicated to this service consists of a manager, a senior engineer, a junior engineer (which is currently vacant) and a technical support person. Additional pressure on the service is the technical interaction with the delivery team for the Core Area Wastewater project. Besides not having enough staff to currently support the service, the service is being expanded with the addition of the McLoughlin treatment plant, major pumping stations at Clover Point and Macaulay, extensive conveyancing systems and ancillary works related to the project, which all began in 2017. Additional staff in the form of 2 FTE's are being requested in 2018. One is a draftsman/GIS technician that will lead the organization of the existing drawing system as well as incorporate the thousands of infrastructure design drawings expected from the project into the appropriate

system. The second is a junior engineer to support the operational and capital activities in all the wastewater systems that the service supports.

**Overall 2017 Budget Performance:** *(linked to budget forecast to year end)*

- There is a \$21,000 (5.2%) unfavourable variance due to additional efforts required to address regulatory demands that were not anticipated in the 2017 budget process. The unfavourable variance was partially offset by savings on salary costs, due to timing of filling a vacant position. This net overage is anticipated to be offset by higher than budgeted revenue from water sales within the RWS service.

**Update to Division Initiatives:** *(linked to section 3 of the detailed service plan)*

- There are no additional divisional initiatives to be added at this time.

**Service Adjustments and Staffing Levels:** *(linked to section 2 of the detailed service plan)*

Proposed Staffing Changes (further justification provided in top box):

- 1 FTE Engineer 3 for Core Sewer Engineering Support to provide technical support for the ongoing Core Area wastewater projects including McLoughlin treatment plant, major pumping stations at Clover Point and Macaulay, extensive conveyancing systems and ancillary works related to the preceding. This FTE will be fully recovered from work on the Core Sewer operating and capital programs.
- 1 FTE Draftsperson/GIS Technician for Core Sewer Engineering Support to develop and maintain drawing and GIS systems for current assets as well as the additional drawings and assets that will flow into the system from the Core Area wastewater project including McLoughlin treatment plant, major pumping station at Clover Point and Macaulay, extensive conveyancing systems and ancillary works related to the preceding which have started in 2017. This FTE will be fully recovered from work on the Core Sewer operating and capital programs.
- 1 FTE Manager for Juan de Fuca Water Engineering and Planning to manage and lead the service as described in the top box in this document. This position is being repurposed from another division in IWS. This FTE will be fully recovered from work on the JDF Water Distribution operating budget.
- 1 FTE Administrative Clerk for Juan de Fuca Water Engineering and Planning to provide administrative support and public interaction with the customers of the rapidly growing JDF water system. Also, to lead the implementation of Tempest as the new database system and monitor the new DCC collection process. This FTE will be fully recovered from work on the JDF Water Distribution operating budget.

**Key Performance Indicators:** *(linked to section 4 of the detailed service plan)*

Indicator Name	2017 Planned	2017 Projected	2018 Planned
	(Annual Target from Service Plan)	(Projected to year end)	(Revised/New Annual Target)
<b>Service Goal: Reduce processing and response time</b>	45 days	45 days	40 days

## SERVICE PLAN UPDATE SUMMARY – 2018

<p><b>Service Goal: Maintain strategic infrastructure investments</b></p>	<p>2015 – 3 plans 2016 – 4 plans 2017 – 5 plans 2018 – 4 plans</p>	<p>Previous 23 SAMP plans have been reduced to 16 plans with the elimination of Saltspring and the addition of SGI Harbours. Actual progress is: 2015 – 3 plans 2016 – 4 plans 2017 – 0 plans 2018 – 2 plans 2019 – 4 plans 2020 – 3 plans All 16 plans have been started and range in completion from 25% to 100%.</p>	<p>2015 – 100% 2016 – 100% 2017 – 0% 2018 – 100% 2019 – 100% 2020 – 100%</p>
<p><b>Service Goal: Ensure responsible delivery and completion of capital projects</b></p>	<p>80% of planned projects will have project plans and 90% will be delivered on budget and on schedule in accordance with the project plans</p>	<p>85% of planned projects will have project plans and 90% will be delivered on budget and on schedule in accordance with the project plans</p>	<p>85% of planned projects will have project plans and 90% will be delivered on budget and on schedule in accordance with the project plans</p>

## Contact

Name: Ian Jesney

Title: Senior Manager, Infrastructure Engineering

Contact Information: 250.474.9502; [ijesney@crd.bc.ca](mailto:ijesney@crd.bc.ca)

**SERVICE NAME:** Infrastructure Operations

**Changes in Assumptions, Trends, and Other Issues since 2017:** (linked to section 1.3 and 1.4 of the detailed service plan)

- Wastewater: Infrastructure Operations is anticipating increased staffing requirements related to the large amount of wastewater infrastructure planned or under construction in the Core Area. This staffing requirement will begin to roll out in 2018 and continue through to full commissioning of the facilities, which is scheduled for the end of 2020. This will involve a combination of full-time permanent position development, as well as auxiliary positions in order to build the internal skill set in anticipation of hiring for permanent wastewater positions in 2019/20.
- Water: Stress on the operation and maintenance programs within the Greater Victoria Water Systems is being experienced. The Juan de Fuca Water Distribution system is experiencing a high rate of water infrastructure expansion to accommodate the high rate of development and population growth. The Regional Water Supply system infrastructure is aging which is resulting in an increased amount of maintenance attention.
- The Japan Gulch Water Treatment Plant upgrade will be completed in early 2018. The upgraded plant in addition to the recently commissioned emergency generator, will result in extra operating costs to the RWS.

**Overall 2017 Budget Performance:** (linked to budget forecast to year end)

- Regional Water Supply: There is an unfavourable variance of \$340,000 (9.7%) due largely to historically under-budgeted labour charges for Water Operations work performed in the service. This overage is anticipated to be offset by higher than budgeted revenue from water sales within RWS.
- Juan de Fuca Water Distribution: There is an unfavourable variance of \$292,000 (7.4%) as a result of the growing cost of inventory and supplies, and labour support from contractors for this service. This overage is anticipated to be offset by higher than budgeted revenue from water sales within JDFWD.
- Saanich Peninsula Water Supply: There is a \$36,000 (2.7%) favourable variance due mainly to projected underspends on overhead costs. Recommendation from the Commission is that year-end surpluses are to be transferred to the Capital Reserve Fund, which has a current balance of \$4,700,000.
- Saanich Peninsula Wastewater ~~Supply~~: There is a \$109,000 (3.3%) favourable variance due mainly to projected underspend on overhead costs, chemical, and waste sludge disposal. Recommendation from the Commission is that year-end surpluses are transferred to the Capital Reserve Fund, which has a current balance of \$3,695,000, except carry forward surplus to fund one time budget items in the following year.
- Core Area Wastewater: Anticipated year end budgets for Core Area are on track with an anticipated deficit of less than 1%.
- Local Service Areas (including SGI Harbours):
  - SGI Harbours – No significant variance to budget is anticipated.
  - SGI Water & Wastewater Utilities – There is a \$ 7,250 (5.4%) unfavorable variance in Lyall Harbour Boot Cove Water operating cost as a result of emergency maintenance. This will be offset with a reduction in transfer to capital reserves. The current balance of capital reserve is \$98,660. No other significant variances are expected in SGI services.
  - SSI Water & Wastewater Utilities – There is a \$15,000 (10.2%) unfavorable variance in Beddis Water operating cost and \$34,000 (13.1%) unfavorable variance in Highland / Fernwood Water as a result of emergency maintenance. This will be offset with an increase in transfer from maintenance reserve. No other significant variances are expected in SSI services.

## SERVICE PLAN UPDATE SUMMARY – 2018

- Juan de Fuca Electoral Area Utilities - No significant variance to budget is anticipated.

### Revenue performance for the 3 Water Utilities:

- Regional Water Supply – Favourable revenue variance of \$405,000 (1.4%) due to higher water sales than budgeted. This additional revenue will be used largely to offset higher than anticipated total operating expenses in the service. Anticipated net surplus remaining of \$18,000 (0.06%) will be transferred to the services' Water Capital Fund per Commission direction.
- Juan de Fuca Water Distribution – Favourable revenue variance of \$750,000 (4.8%) due to higher water sales than budgeted. The additional revenue will be used to offset total operating and bulk water purchase overages. Anticipated net surplus of \$280,000 (1.8%) will be transferred to the services' Water Capital Fund.
- Saanich Peninsula Water Supply – Favourable revenue variance of \$27,345 (0.5%) due to higher water sales than budgeted. This additional revenue will be used to offset bulk water purchase overages. After operating cost savings, the anticipated net surplus of \$44,230 (0.7%) will be transferred to reserves per Commission direction.

### **Update to Division Initiatives:** *(linked to section 3 of the detailed service plan)*

- Water Operations Review: Complete review of Operations and Maintenance programs for the water supply and distribution systems to determine the labour and cost balance between preventative maintenance programs for an increased quantity of assets and completing capital upgrades. (Regional Infrastructure Priority)

### **Service Adjustments and Staffing Levels:** *(linked to section 2 of the detailed service plan)*

- 1.0 FTE (not additional): The service level and size of the Infrastructure Operations division is set to grow in the next 1-3 years with the addition of a large amount of wastewater infrastructure associated with the Core Area Wastewater Project. As a result, the Division will be divided in 2018 to have a service level focus – a) Water and b) Wastewater. This will result in an additional Senior Manager being hired such that there will be a Senior Manager, Water Infrastructure Operations and Senior Manager, Wastewater Infrastructure Operations. This exempt position will not impact the existing staff establishment chart as it is proposed that the previously approved Plant Manager position will be repurposed.
- Additional 1.0 FTE (no budget impact): McLoughlin WWTP Operations Supervisor – with the design, commissioning and operation of the new infrastructure beginning in 2017 and continuing into 2020, there is a need to hire a Supervisor of Operations for the WWTP. This FTE will be funded from committed funds from the CAWTP for the duration of the project. Noted in the bullet above is that the approved Plant Manager FTE will be repurposed, so the Plant Supervisor (CUPE position) is a new request.
- Additional 0.5 FTE: The Magic Lake Estates Water and Sewer Service requires an additional 0.5 FTE for an operator to complete the required operation and maintenance tasks for the new Water Treatment Plant and the aging wastewater infrastructure.
- Auxiliary and Student Seasonal Staff: The seasonal workload in the Core Water and Wastewater services require additional support staff in the form of students and auxiliary to complete operations and maintenance. In addition, the support staff will build internal knowledge base to potentially fill positions for the new core area wastewater treatment service.
- 2018-2020 Staffing and Service Increase: The staffing levels and new operations functions associated with the CAWTP infrastructure will begin to take effect in 2018 and into 2020. Though staffing levels are still to be finalized, this will result in approximately: 12 new operators for the WWTP; 2 new operators for the wastewater collection system; 2 new Electrical instrumentation and controls staff to support all new infrastructure; 2 new mechanical staff to support all new infrastructure.

- There is a noted need for a Facilities Maintenance Coordinator to develop and maintain operations and maintenance programs for the multitude of facilities within water and wastewater infrastructure operations.

<b>Key Performance Indicators: (linked to section 4 of the detailed service plan)</b>																																																			
<b>Indicator Name</b>	<b>2017 Planned</b>	<b>2017 Projected</b>	<b>2018 Planned</b>																																																
<p><b>Service Goal: Maintain high quality water and wastewater infrastructure.</b></p> <p>Maintenance: Planned Maintenance Completed</p>	94%	92%	96%																																																
<p><b>Service Goal: Ensure compliance with all regulatory requirements</b></p> <p>Regulatory Compliance: # Regulatory Contraventions for drinking water quality</p> <p>Regulatory Compliance: # Regulatory Contraventions for wastewater effluent quality exceedance</p>	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table> <table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	GVWS	0	JDF EA	0	SSI EA	0	SGI EA	0	SPWWTP	0	JDF EA	0	SSI EA	0	SGI EA	0	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table> <table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td>1</td></tr> <tr><td>SSI EA</td><td>5</td></tr> <tr><td>SGI EA</td><td>9</td></tr> </table>	GVWS	0	JDF EA	0	SSI EA	0	SGI EA	0	SPWWTP	0	JDF EA	1	SSI EA	5	SGI EA	9	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table> <table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	GVWS	0	JDF EA	0	SSI EA	0	SGI EA	0	SPWWTP	0	JDF EA	0	SSI EA	0	SGI EA	0
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<p><b>Service Goal: Ensure employees and contractors complete work safely</b></p> <p>Lost Time Incidents # days lost Avg days lost per claim</p>	<p>≤ 8 ≤ 100 ≤ 12</p>	<p>6 70 12</p>	<p>≤ 7 ≤ 80 ≤ 10</p>																																																
<p><b>Financial Indicator: *</b></p> <p>Cost Recovery (Total Revenue/Total Cost) By Water Utility</p>	<table border="1"> <tr><td>RWS</td><td>1.000</td></tr> <tr><td>JDFWD</td><td>1.000</td></tr> <tr><td>SPWS</td><td>1.000</td></tr> </table>	RWS	1.000	JDFWD	1.000	SPWS	1.000	<table border="1"> <tr><td>RWS</td><td>1.001</td></tr> <tr><td>JDFWD</td><td>1.018</td></tr> <tr><td>SPWS</td><td>1.008 <del>32</del></td></tr> </table>	RWS	1.001	JDFWD	1.018	SPWS	1.008 <del>32</del>	<table border="1"> <tr><td>RWS</td><td>1.000</td></tr> <tr><td>JDFWD</td><td>1.000</td></tr> <tr><td>SPWS</td><td>1.000</td></tr> </table>	RWS	1.000	JDFWD	1.000	SPWS	1.000																														
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\*data provided by Finance department

## Contact

Name: Matt McCrank

Title: Senior Manager, Infrastructure Operations

Contact information: 250.474.9662; [mmccrank@crd.bc.ca](mailto:mmccrank@crd.bc.ca)

**SERVICE NAME:** Watershed Protection

**Changes in Assumptions, Trends, and Other Issues since 2017:** (linked to section 1.3 and 1.4 of the detailed service plan)

- Preparation of the 2017 Regional Water Supply Strategic Plan has highlighted the need for detailed knowledge of the hydrological and biological parameters that affect future drinking water quantity and quality in the Leech Water Supply Area for the Regional Water Supply

**Overall 2017 Budget Performance:** (linked to budget forecast to year end)

- There is a one-time unfavourable variance of \$27,000 (1%) due to a contract wage increase related to USW Local-1937 (2013-2016). This variance may be offset by greater than expected revenue from staff on standby to the BC Wildfire Service.

**Update to Division Initiatives:** (linked to section 3 of the detailed service plan)

- Several projects in Resource Planning have been delayed, including the completion of the Watershed Assessment update, biological security strategy, and expansion of public and school tours of the GVWSA. Assistance in Resource Planning through the requested additional FTE would help ensure planned projects can be completed.
- The application for funding of a NSERC Network for Forested Drinking Water Source Protection Technologies was funded for 5 years with CRD as Strategic Network Partner.

**Service Adjustments and Staffing Levels:** (linked to section 2 of the detailed service plan)

- 1 FTE increase proposed for 2018 in Resource Planning for a Watershed Technologist/Information Officer to provide capacity for resource planning projects, hydrology field monitoring and public tour expansion.

<b>Key Performance Indicators: (linked to section 4 of the detailed service plan)</b>			
<b>Indicator Name</b>	<b>2017 Planned</b>	<b>2017 Projected</b>	<b>2018 Planned</b>
<p><b>Service Goal: Increase strategies and actions to protect the drinking water supply and improve access to catchment lands.</b></p> <ul style="list-style-type: none"> <li>• Annual work on watershed roads:               <ul style="list-style-type: none"> <li>○ Maintenance</li> <li>○ Upgrades</li> <li>○ Reclamation</li> </ul> </li> <li>• Capital projects               <ul style="list-style-type: none"> <li>○ % on time</li> <li>○ % on budget</li> </ul> </li> </ul>	<p>367 km 5 km 5 km</p> <p>100% on time 100% on budget</p>	<p>300 km 5 km 5 km</p> <p>73 % on time 73 % on budget</p>	<p>367 km 5 km 5 km</p> <p>100% on time 100% on budget</p>
<p><b>Service Goal: Increase public engagement and education efforts.</b></p> <ul style="list-style-type: none"> <li>• Annual tours and participation 2015 = 682</li> </ul>	<p>23 tours 700 participants</p>	<p>29 tours 880 participants</p>	<p>36 tours 1080 participants</p>

## Contact:

Name: Annette Constabel, MSc, RPF, PMP

Title: Senior Manager, Watershed Protection

Contact information: 250.391.3556, [aconstabel@crd.bc.ca](mailto:aconstabel@crd.bc.ca)

**SERVICE NAME:** Customer & Technical Services

**Changes in Assumptions, Trends, and Other Issues since 2017:** (linked to section 1.3 and 1.4 of the detailed service plan)

The following are assumptions that have changed since 2017:

- The Safety Advisor position is being transferred to Human Resources as of 2018. The responsibility for the departmental safety program however will still reside within the CTS division and not with the Safety Advisor.
- With the increased need for maintenance inspections of water and wastewater facility buildings, the assumption is that Facilities Management will provide support to Infrastructure Operations, and not Customer and Technical services.

**Overall 2017 Budget Performance:** (linked to budget forecast to year end)

- Customer & Technical Services (CTS) and General Manager - There is a one-time favourable variance of \$199,000 (5%) due to underspending in consulting costs, contract for services, advertising, and wages and salaries due to one vacant position. This variance will be used to offset the unfavourable variance in the Central Fleet Program.
- Central Fleet – There is a one-time unfavourable variance of \$140,000 (12.4%) due primarily to the timing of a 2016 expenditure (paid in 2017) related to the Maintenance Study funded as a one-time budget increase in 2016 and higher than normal costs for the Fleet Shop maintenance, safety, and vehicle transport. This variance will be offset by the positive variance in the CTS and General Manager budget above.

**Update to Division Initiatives:** (linked to section 3 of the detailed service plan)

- Fleet Maintenance Study was completed in 2017
- Fleet Management Software is ongoing. Proposal received to review present systems functional capacity.
- Fuel card implementation in progress.
- Outstanding maintenance plans completed.
- NWWBI 2015 data and reporting completed and 2016 draft data submitted.

**Service Adjustments and Staffing Levels:** (linked to section 2 of the detailed service plan)

- 2018 – 1 FTE transferred to Human Resources. The safety advisor function will now report to the Safety Manager in Human Resources.

<b>Key Performance Indicators: (linked to section 4 of the detailed service plan)</b>			
<b>Indicator Name</b>	<b>2017 Planned</b>	<b>2017 Projected</b>	<b>2018 Planned</b>
<p><b>Service Goal: Increase knowledge and compliance with corporate fleet policies</b></p> <ul style="list-style-type: none"> <li>Update 2007 Corporate Fleet Driver and Management policies and procedures</li> </ul>	Complete implementation plan	Appoint consultant	Complete policy review and update
<p><b>Service Goal: Contribute to corporate climate action objectives</b></p> <ul style="list-style-type: none"> <li>GHG emissions data</li> </ul>	Implement a new data system using a Corporate-wide fuel card	Appoint service provider	Review system
<p><b>Service Goal: Maintain responsible management and maintenance of Corporate Fleet</b></p> <ul style="list-style-type: none"> <li>Fleet Maintenance Study</li> </ul>	Issue a RFP for study and appoint consultant	Complete study	Implement relevant recommendations and standards

## Contact

Name: Jan van Niekerk

Title: Senior Manager, Customer and Technical Services

Contact Information: 250.474.9655

# Service Plan for Infrastructure Engineering

2016-2019

Capital Regional District

*Date submitted: ~~October 7, 2015~~*

*Revised: ~~November 23, 2016~~ August 14, 2017*



Making a difference...together

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# 1 Overview

## 1.1 Division & Service Summary

The Infrastructure Engineering Division provides water and wastewater utility planning, engineering services and capital project delivery for the Integrated Water Services Department. Technical services provided by the Division include:

- Strategic asset management planning
- Capital project delivery and project management
- Engineering design and drafting
- Survey and mapping
- Response to development servicing requests and underground utility referrals
- Engineering support to IWS Operations
- Dam safety inspections and administration
- Watershed hydrology and water supply planning

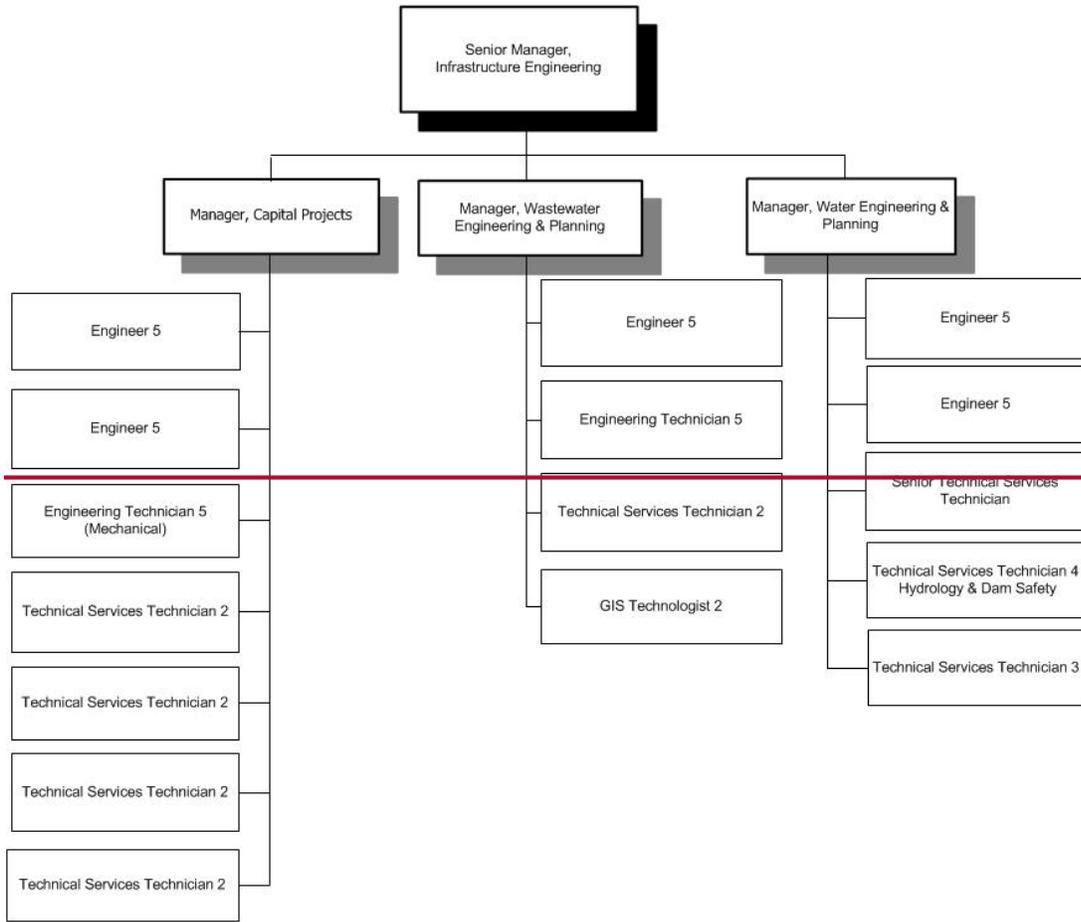
The above noted technical services are provided to the following CRD Services in the table below:

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<b>Regional Water Supply</b> Wholesale water supply to the 350,000 consumers in Greater Victoria supported through three key service areas: infrastructure planning, capital project delivery and engineering services.	<ul style="list-style-type: none"> <li>• 4 Core Municipalities (Saanich, Victoria/Esquimalt, Oak Bay)</li> <li>• Saanich Peninsula</li> <li>• JDF Distribution</li> </ul>	Funded through bulk water sales revenue	Regional Water Supply Commission (Standing)
<b>Juan de Fuca Water Distribution</b> Retail water supply to <b>58,000 residents in</b> the six municipalities in the Western Communities, Sooke, and 4 First Nations supported through three key service areas: infrastructure planning, capital project delivery and engineering services.	<ul style="list-style-type: none"> <li>• 6 Municipalities (Langford, Colwood, View Royal, Metchosin, Sooke, portion of Highlands)</li> <li>• 4 First Nations</li> <li>• JDF Electoral Area</li> </ul>	Funded through retail water sales revenue	Juan de Fuca Water Distribution Commission (Standing)
<b>Saanich Peninsula Water</b> Wholesale water supply to residents in the three municipalities on the Saanich Peninsula supported through three key service areas: infrastructure planning, capital project delivery and engineering services.	<ul style="list-style-type: none"> <li>• 3 Municipalities (Central Saanich, North Saanich, Sidney)</li> </ul>	Funded through wholesale water sales revenue	Saanich Peninsula Water Commission (Standing)

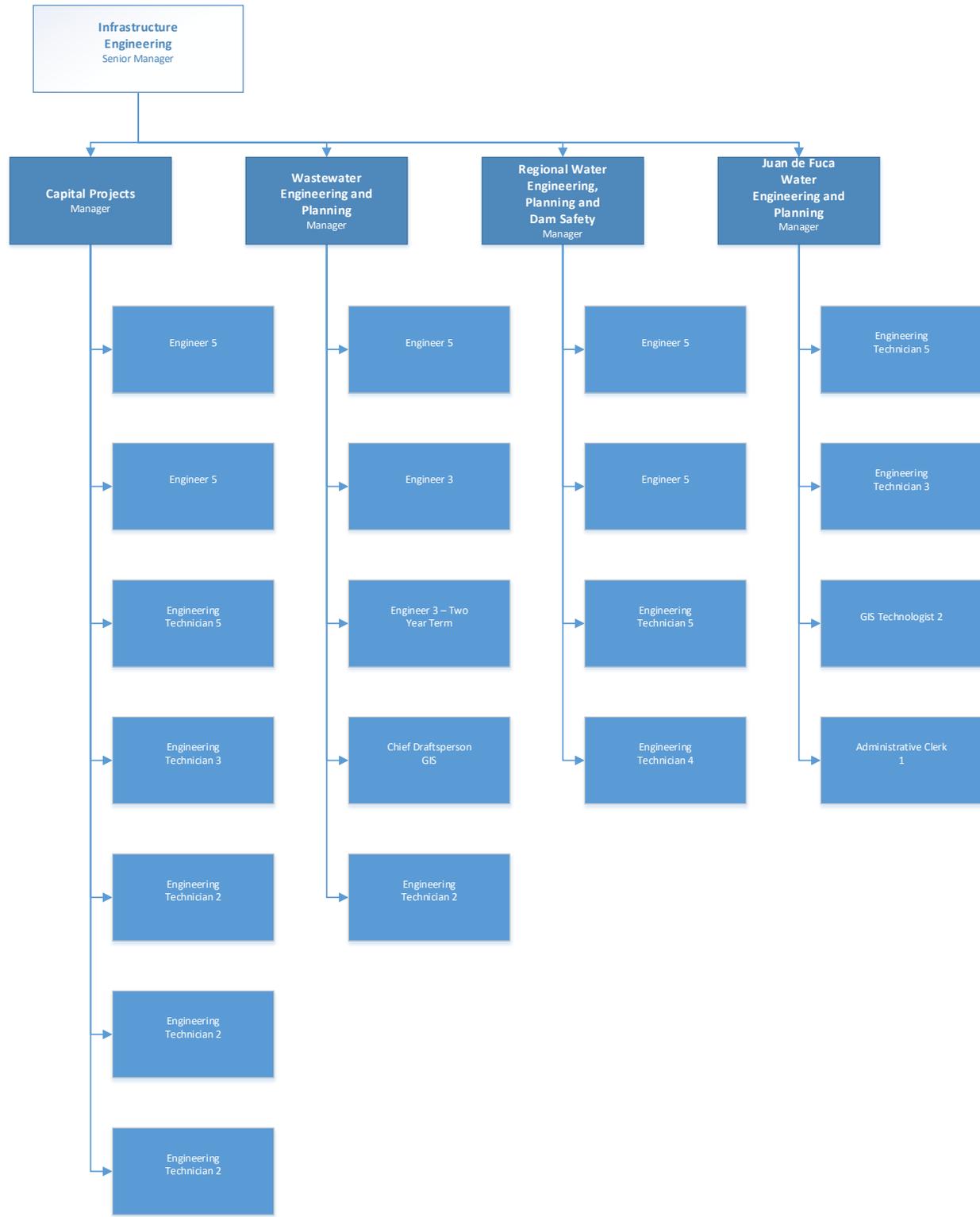
Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p><b>Core Area Wastewater</b> Sub-regional wastewater conveyance, treatment, and disposal services in the Core Area supported through three key service areas: infrastructure planning, capital project delivery and engineering services.</p>	<ul style="list-style-type: none"> <li>7 Municipalities (Colwood, Langford, Esquimalt, Oak Bay, Saanich, Victoria, View Royal)</li> <li>Songhees Nation</li> <li>Esquimalt Nation</li> </ul>	<p>Funded through tax requisition based on each participant's flow or design capacity</p>	<p>Core Area Liquid Waste Management Committee (Standing)</p>
<p><b>Saanich Peninsula Wastewater</b> Sub-regional wastewater conveyance, treatment, and disposal services for the Saanich Peninsula municipalities, and other participants supported through three key service areas: infrastructure planning, capital project delivery and engineering services.</p>	<ul style="list-style-type: none"> <li>3 Municipalities (Central Saanich, North Saanich, Sidney)</li> <li>Peninsula First Nations</li> <li>IOS and Victoria Airport</li> </ul>	<p>Funded through tax requisition based on each participant's flow or design capacity</p>	<p>Saanich Peninsula Wastewater Commission (Standing)</p>
<p><b>Local Services</b> Local services in the JDF, SGI, and SSI Electoral Areas including 12 water systems, 4 sewer systems, 1 septage facility, <del>11 harbour facilities</del><del>1-dock facility</del> supported through three key service areas: infrastructure planning, capital project delivery and engineering services.</p>	<ul style="list-style-type: none"> <li>Small service area customers within JDF, SGI, and SSI Electoral Areas</li> </ul>	<p>Funded through parcel tax and user charges (fixed and variable)</p>	<p>Various <a href="#">Harbour, Water and Wastewater Local Service Commissions</a> (Advisory Commissions)</p>

# 1.2 Organization Chart

~~Replace organization chart with new one below.~~



# IWS Infrastructure Engineering



## 1.3 Key Trends, Issues & Risks – Service Specific

- **Infrastructure Renewal:** In general, sewer and water Infrastructure in North America has not been replaced at a sustainable rate. There is now an increased awareness of the “infrastructure deficit” and the need to replace system components, although funding is not in place for most services yet.
- **Climate Change:** As climate change occurs the summers are becoming hotter and drier and the winters are seeing more intense rain storms. This can lead towards water shortages in the summer and flooding and increased power outages in the winter. Therefore, water resources must be conserved and efficiently used throughout the region and infrastructure in flood prone areas needs to be designed with possible flooding in mind in addition to increased requirements for backup power.
- **Infrastructure Vulnerability and Emergency Preparedness:** As the region grows and the infrastructure networks age, key components of the system could become vulnerable to providing reliable service especially during an emergency situation. Plans need to be updated to mitigate risks, enhance reliability, and to be prepared.
- **Regulatory Changes:** Increased stringency of environmental, safety and electrical regulations are causing cost increases for capital projects and operating budgets. Of particular note are the Provincial requirements for dam safety and their impact on the variety of dams the service maintains and is required to improve.
- **Project Delivery:** To better meet the objectives and priorities of client’s needs and deliver more projects on time and on budget, the IE Division is exploring a number of procurement strategy options for capital projects. The design-build of the Japan Gulch Treatment Upgrade is an example of an alternative procurement option.
- **Infrastructure Growth:** To maintain client service at current levels, additional financial and personnel resources are required to meet rapid growth in a number of areas. Major growth areas that are now impacting the service are the rapid expansion of the Juan de Fuca water system and the addition of the Core Area Sewage facilities that are being delivered from now through 2020.

## 1.4 Link to Priorities

### INTEGRATED WASTE MANAGEMENT

- realign resources to effectively deliver on Board directives relating to integrated waste management and develop an overarching integrated plan
- implement an assessment framework on integration opportunities, consider innovative approaches and report on the effectiveness of programs

### CLIMATE CHANGE

- realign resources to effectively deliver on Board directives relating to climate change and implement policy and practices to demonstrate leadership in operations

### DRINKING WATER

- protect and maintain an adequate supply of safe, reliable drinking water
- invest in the renewal and replacement of aging infrastructure to deliver an adequate supply of safe, reliable drinking water

### REGIONAL INFRASTRUCTURE

- ensure that resources are available for investment in current and future infrastructure, demonstrating efficiency and value for money and meeting regulatory and service requirements
- develop and implement asset management planning framework and tools to continue proactive and responsible management of assets and infrastructure, both natural and engineered

### CORPORATE DEVELOPMENT

- evaluate the use of innovative technologies and corporate support systems for continuous improvement and effective service delivery
- ensure CRD service delivery is effectively supported through the development of best practices
- enhance and ensure effective financial and audit reporting practices
- support continued investments in workforce education, training and development

## 2 Services

### 2.1 Service Levels

Service	Service Level Adjustments in Role/Scope				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Infrastructure planning</b>	<ul style="list-style-type: none"> <li>Complete long term Strategic Asset Management Plans (SAMP) for all service/systems. Plans to include modeling, capacity analysis, vulnerability assessment, emergency preparedness, infrastructure renewal plans, and financial plan for infrastructure replacement financing for 23 water and wastewater services.</li> </ul>	Complete 9 service SAMP	Complete 8 service SAMP	Review and Assess	Adjust to meet service delivery needs, as required
<b>Capital project delivery and project management</b>	<ul style="list-style-type: none"> <li>Complete project design, procurement, and delivery of capital projects planned each year, on time and budget. 2015 capital program value for 23 services – approximately \$20 million</li> </ul>	Complete \$15M - \$20M program	Complete \$20M - \$25M program <u>Total capital program = \$34.2 M</u>	Complete <del>\$20M-25M</del> - <del>\$25M-30M</del> program <u>Total capital program = \$38.2 M</u>	Complete <del>\$10M-25M</del> <del>\$20M-30M</del> program <u>Program</u>
<b>Engineering Design and Drafting</b>	<ul style="list-style-type: none"> <li>Ongoing services for development referrals; survey and mapping; engineering support to utility operations; Dam safety inspections and administration; Watershed hydrology and water supply planning</li> </ul>	Review and Assess	Adjust to meet service delivery needs, as required	Review and Assess	Adjust to meet service delivery needs, as required

## 2.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Regional Water Engineering &amp; Planning &amp; Dam Safety</b>	6.33	7.33	7.33	<del>6.33</del> 5.25	<del>6.33</del> 5.25
<b>Juan de Fuca Water Engineering &amp; Planning</b>				5.25	5.25
<b>Wastewater Engineering &amp; Planning</b>	5.33	5.33	5.33	<del>5.33</del> 6.25	<del>6.25</del> 5.33
<b>Capital Project Engineering</b>	8.33	8.33	8.33	<del>8.33</del> 8.25	<del>8.25</del> 8.33
<b>Total</b>	20	21	21	<del>20</del> 25	<del>20</del> 25

Supplemental Budget includes an allowance for retaining 1 staff on 2-year term engineer position to address upcoming workload demands over the next two years and including planning and execution the following initiatives/projects: Supply System Vulnerability Assessment, Strategic Asset Management Plans for all service areas, Japan Gulch Treatment Upgrade, and Ganges Wastewater Treatment Upgrade to support the growth in wastewater due to the Core Area Wastewater program. ~~—The new 2-year term FTE is funded entirely from planned capital projects in various utility service areas operational and capital budgets related to wastewater.~~ At the end of ~~2017~~2015, the current 5 year term engineer position (established for 5-year JDF fire flow upgrade program 2012-2016) ~~is proposed to be converted~~ into a permanent position.

## 3 Divisional Initiatives & Budget Implications

This section highlights important divisional initiatives over the next four years, including those initiatives related to delivery of 2015 – 2018 Board Strategic Priorities.

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Wastewater Asset Management Plans</b>	Complete Strategic Asset Management Plans for Core Area system and generate prioritized asset replacement in consideration of treatment program	Integrated Waste Management Regional Infrastructure Corporate Development	Capital Budgets
<b>Small System Asset Management Plans</b>	Complete Strategic Asset Management Plans for 9 Small Water and Wastewater Systems, generate prioritized asset replacement list; identify funding model for long-term asset replacement plans	Integrated Waste Management Drinking Water Regional Infrastructure Corporate Development	Capital Budgets
<b>Saanich Peninsula Water System Asset Management Plan</b>	Complete plan to establish long term strategy for infrastructure upgrades and financial plan	Integrated Waste Management Regional Infrastructure Corporate Development	Capital Budgets

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>JDF Water Distribution System Asset Management Plan</b>	Plan to establish long term strategy for annual main and service replacement program, fire flow related upgrades, pump station and reservoir upgrades	Drinking Water Regional Infrastructure Corporate Development	Capital Budgets
<b>JDF Water Distribution Water Audit</b>	Complete system water audit that will review metering program and strategy, non-revenue water sources and quantification, demand analysis and water balance	Drinking Water	Capital Budgets
<b>Regional Water Supply System - Strategic Plan</b>	Complete studies to prepare for treatment and transmission sections of 2018-2019 strategic plan for water supply, including supply main condition assessment and replacement plan, hydraulic modeling and supply forecasting, water quality and filtration study, post disaster water supply requirements, supply system vulnerability update and dam safety improvements.	Drinking Water Corporate Development Regional Infrastructure	Capital Budgets
<b>RWSC Upgrade Disinfection Process at Japan Gulch</b>	Implement new methods of adding chlorine and ammonia to water for disinfection	Regional Infrastructure	Capital Budgets
2017			
<b>Municipal Water and Wastewater Service Agreements</b>	Establish master water and wastewater service agreements with municipalities across region.	Drinking Water Integrated Waste Management Corporate Development	Capital Budgets
<b>Small System Asset Management Plans</b>	Complete Strategic Asset Management Plans for 8 Small Water and Wastewater Systems, generate prioritized asset replacement list; identify funding model for long-term asset replacement plans	Integrated Waste Management Drinking Water Regional Infrastructure Corporate Development	Capital Budgets
2018			
<b>Regional Water Supply Strategic Plan</b>	Work with other IWS divisions in completion and release of plan	Drinking Water Regional Infrastructure Corporate Development	Capital Budgets
2019			
<b>Utility Infrastructure Replacements</b>	Update service capital and financial plans with 2016-2018 asset management plan recommendations	Regional Infrastructure	Capital Budgets

## 4 Goals & Performance Indicators

Service Goals	Indicators or Measures
Reduce processing and response time	<ul style="list-style-type: none"> <li>Annual processing and response time for development servicing applications and utility referrals (baseline in 2015: response provided within 65 days of receipt). Target response within 60 days in 2016; <del>50</del><u>45</u> days in 2017; 40 days in 2018; and 30 days in 2019.</li> </ul>
Maintain strategic infrastructure investments	<ul style="list-style-type: none"> <li>Number of infrastructure replacement projects*</li> <li>Total value of infrastructure investment annually*</li> <li>Strategic asset management plans in place* (baseline in 2015: 6 plans). Target completion of 9 plans in 2016 and 8 plans in 2017.</li> </ul>
Ensure responsible delivery and completion of capital projects	<ul style="list-style-type: none"> <li>Percentage of capital projects completed on time and on budget* (target minimum 85% annually)</li> </ul>

\*Corporate indicator – multiple divisions may contribute to this measure

Please see revised table below.

### KEY PERFORMANCE INDICATORS

Indicator Name	<del>2016</del> <u>2017</u> Planned	<del>2016</del> <u>2017</u> Projected	<del>2017</del> <u>2018</u> Planned
	(Annual Target from Service Plan)	(Projected to year end)	(Revised/New Annual Target)
Reduce processing and response time	<del>60</del> <u>45</u> days	<del>50</del> <u>45</u> days	<del>45</del> <u>40</u> days
Maintain strategic infrastructure investments	2015 – <del>6</del> <u>3</u> plans 2016 – <del>9</del> <u>4</u> plans 2017 – <del>8</del> <u>5</u> plans <u>2018 – 4 plans</u>	Previous 23 SAMP plans has been reduced to 16 plans with the elimination of Saltspring and the addition of SGI Harbours. Actual progress is: 2015 – 3 plans 2016 – 4 plans 2017 – <del>5</del> <u>0</u> plans 2018 – <del>4</del> <u>2</u> plans <u>2019 – 4 plans</u> <u>2020 – 3 plans</u> All 16 plans have been started and range in completion from 25% to 100%	2015 – 100% 2016 – 100% 2017 – <del>100</del> <u>0</u> % 2018 – 100% <u>2019 – 100%</u> <u>2020 – 100%</u>
Ensure responsible delivery and completion of capital projects	<del>85% of capital projects completed on time and on budget</del> <u>80% of planned projects will have project plans and 90% will be delivered on budget</u>	<del>80</del> <u>85</u> % of planned projects will have project plans and 90% will be delivered on budget and on schedule in accordance with the project plans	<i>85% of planned projects will have project plans and 90% will be delivered on budget and on schedule in accordance with the project plans</i>

	<i>and on schedule in accordance with the project plans budget</i>		
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## Contact

Name: Ian Jesney

Title: Senior Manager, Infrastructure Engineering

Contact information: 250.474.9502; [ijesney@crd.bc.ca](mailto:ijesney@crd.bc.ca)

# Service Plan for Infrastructure Operations

2016-2019

Capital Regional District

*Date submitted: October 7, 2015*

*Revised: ~~November 23, 2016~~ August 2017*



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# 1 Overview

## 1.1 Division & Service Summary

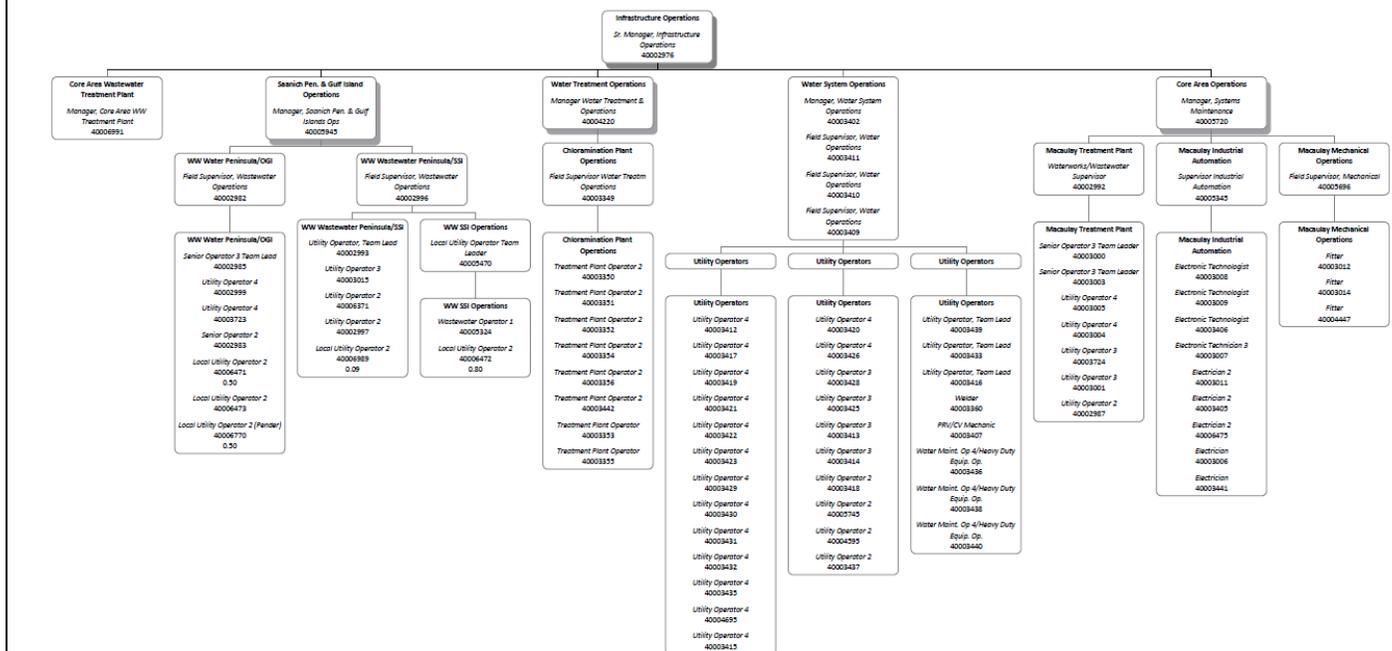
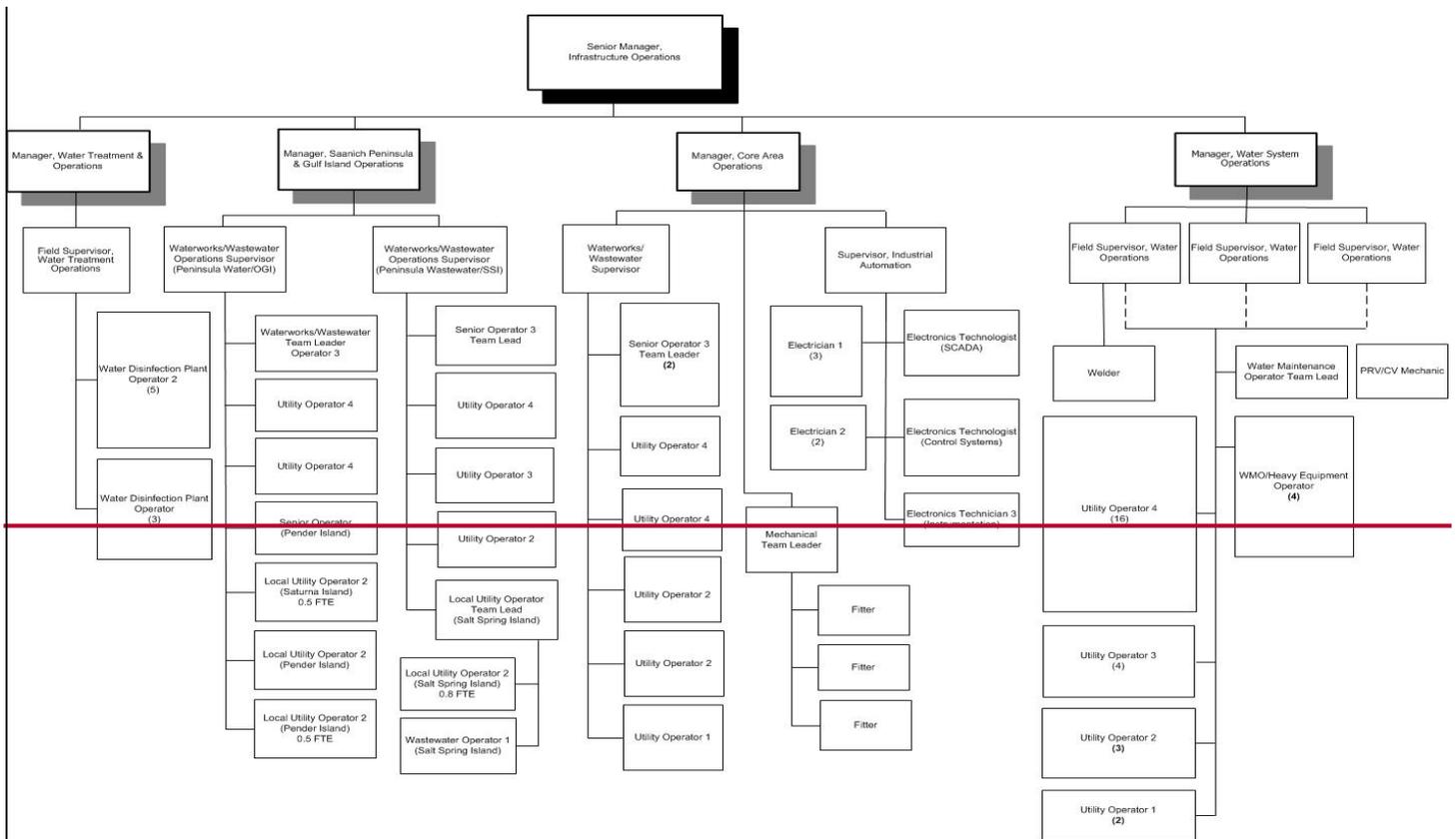
The Infrastructure Operations Division operates a number of drinking water and wastewater systems across the Capital Region, with a focus on providing clean and safe potable water, and wastewater collection and disposal services, while ensuring compliance with public health and environmental regulations.

The Division operates and proactively manages our infrastructure assets that exist in the following service areas: Regional Water Supply System, Juan de Fuca Water Distribution System Saanich Peninsula Water Supply System, Regional Trunk Wastewater, Saanich Peninsula Wastewater System, as well as 18 Local Service Area Small Water and Wastewater Systems in the electoral areas.

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p><b>Regional Water Supply</b> Wholesale water supply to the 350,000 consumers in Greater Victoria supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>4 Core Municipalities (Saanich, Victoria/Esquimalt, Oak Bay)</li> <li>Saanich Peninsula</li> <li>JDF Distribution</li> </ul>	Funded through bulk water sales revenue	Regional Water Supply Commission (Standing)
<p><b>Juan de Fuca Water Distribution</b> Retail water supply to <del>the 58,000</del> residents in the six municipalities in the Western Communities, Sooke, and 4 First Nations supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>6 Municipalities (Langford, Colwood, View Royal, Metchosin, Sooke, portion of Highlands)</li> <li>4 First Nations</li> <li>JDF Electoral Area</li> </ul>	Funded through retail water sales revenue	Juan de Fuca Water Distribution Commission (Standing)
<p><b>Saanich Peninsula Water</b> Wholesale water supply to residents in the three municipalities on the Saanich Peninsula supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>3 Municipalities (Central Saanich, North Saanich, Sidney)</li> </ul>	Funded through wholesale water sales revenue	Saanich Peninsula Water Commission (Standing)

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p><b>Core Area Wastewater</b> Sub-regional wastewater conveyance, treatment, and disposal services in the Core Area supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>• 7 Municipalities (Colwood, Langford, Esquimalt, Oak Bay, Saanich, Victoria, View Royal)</li> <li>• Songhees Nation</li> <li>• Esquimalt Nation</li> </ul>	<p>Funded through tax requisition based on each participant's flow or design capacity</p>	<p>Core Area Liquid Waste Management Committee (Standing)</p>
<p><b>Saanich Peninsula Wastewater</b> Sub-regional wastewater conveyance, treatment, and disposal services for the Saanich Peninsula municipalities, and other participants supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>• 3 Municipalities (Central Saanich, North Saanich, Sidney)</li> <li>• Peninsula First Nations</li> <li>• IOS and Victoria Airport</li> </ul>	<p>Funded through tax requisition based on each participant's flow or design capacity</p>	<p>Saanich Peninsula Wastewater Commission (Standing)</p>
<p><b>Local Services</b> Local services in the JDF, SGI, and SSI Electoral Areas including 12 water systems, 4 sewer systems, 1 septage facility, <del>and 4 dock facility</del> <u>11 harbour facilities</u> supported through four key service areas: Water and Wastewater System Operations, Water and Wastewater System Maintenance, Emergency Response/System Failure, and Capital Works.</p>	<ul style="list-style-type: none"> <li>• Small service area customers within JDF, SGI, and SSI Electoral Areas</li> </ul>	<p>Funded through parcel tax and user charges (fixed and variable)</p>	<p>Various <u>Harbour</u>, Water and Wastewater Local Service Commissions (Advisory Commissions)</p>

# 1.2 Organization Chart



## 1.3 Key Trends, Issues & Risks – Service Specific

**Core Area Wastewater Treatment Project** – it is anticipated that Infrastructure Operations staff will be involved in the project, providing design input from an operational perspective in the early phases, to eventual commissioning and operation of the new facilities in the completion phases. Staffing requirements will increase as new facilities are completed.

Infrastructure Operations is anticipating increased staffing requirements related to the large amount of wastewater infrastructure planned or under construction in the Core Area. This staffing requirement will begin to roll out in 2018 and continue through to full commissioning of the facilities which is scheduled for the end of 2020. This will involve a combination of full time permanent position development as well as auxiliary positions in order to build the internal skill set in anticipation of hiring for permanent wastewater positions in 2019/20.

**Local Service Area Operations and Capital Improvements** – It is anticipated that Infrastructure Operations staff will be directly involved in the planning and completion of the many infrastructure improvement projects that are required across the Local Service Area water and wastewater systems, to address failing/aging infrastructure. The expected level of involvement will have an impact on available staff resources.

**Worker Safety Regulatory Changes** – Increasing worker safety regulatory changes result in increased training and certification requirements (ie. crane safety training and certification, fleet service vehicle driver training) and operating procedural changes (ie. confined space work procedures and safe excavation requirements) that have an impact on field productivity, but are critical to the work environment.

**Workforce Planning** – A focus on divisional workforce planning will be important to identify knowledge transfer opportunities and staffing levels necessary to operate new facilities requiring higher levels of EOCP certification and to backfill retirements in operating areas.

**Water Operations:** Additional financial resources are required to maintain the current level of service of operation and maintenance programs within the Greater Victoria Water Systems. The Juan de Fuca Water Distribution system is experiencing a high rate of water infrastructure expansion to accommodate the high rate of development and population growth. The Regional Water Supply system infrastructure is aging which is resulting in an increased amount of maintenance attention.

**Water Treatment Operations:** The Japan Gulch Water Treatment Plant upgrade will be completed in early 2018. The upgraded plant in addition to the recently commissioned emergency generator, will result in extra operating costs to the RWS.

## 1.4 Link to Priorities

### CLIMATE CHANGE

- realign resources to effectively deliver on Board directives relating to climate change and implement policy and practices to demonstrate leadership in operations
- develop a climate framework to guide decision-making, establish a working group to identify climate change priorities and maximize partnerships

### INTEGRATED WASTE MANAGEMENT

- realign resources to effectively deliver on Board directives relating to integrated waste management and develop an overarching integrated plan
- implement an assessment framework on integration opportunities, consider innovative approaches and report on the effectiveness of programs

### DRINKING WATER

- protect and maintain an adequate supply of safe, reliable drinking water
- invest in the renewal and replacement of aging infrastructure to deliver an adequate supply of safe, reliable drinking water

### REGIONAL INFRASTRUCTURE

- ensure that resources are available for investment in current and future infrastructure, demonstrating efficiency and value for money and meeting regulatory and service requirements
- develop and implement asset management planning framework and tools to continue proactive and responsible management of assets and infrastructure, both natural and engineered

### CORPORATE DEVELOPMENT

- evaluate the use of innovative technologies and corporate support systems for continuous improvement and effective service delivery
- ensure CRD service delivery is effectively supported through the development of best practices
- enhance and ensure effective financial and audit reporting practices
- support continued investments in workforce education, training and development

## 2 Services

### 2.1 Service Levels

Service	Service Level Adjustments in Role/Scope				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Water and Wastewater System Operations</b>	<ul style="list-style-type: none"> <li>• Water and wastewater treatment;</li> <li>• supply and distribution system operation;</li> <li>• collection and transmission system operation;</li> <li>• system monitoring;</li> <li>• customer service</li> </ul>	Review and Assess	Adjust to meet service delivery needs, as required	Review and Assess	Adjust to meet service delivery needs, as required

Service	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Water and Wastewater System Maintenance</b>	<ul style="list-style-type: none"> <li>System and facility maintenance</li> <li>Consumables management</li> <li>Component preventative maintenance</li> </ul>	Review and Assess	Adjust to meet service delivery needs, as required	Review and Assess	Adjust to meet service delivery needs, as required
<b>Emergency Response / System Failure</b>	<ul style="list-style-type: none"> <li>Water main breaks;</li> <li>wastewater overflows;</li> <li>unplanned service interruptions</li> </ul>	Review and Assess	Adjust to meet service delivery needs, as required	Review and Assess	Adjust to meet service delivery needs, as required
<b>Capital Works</b>	<ul style="list-style-type: none"> <li>Main installations;</li> <li>equipment replacement;</li> <li>capital projects support</li> </ul>	Review and Assess	Adjust to meet service delivery needs, as required	Review and Assess	Adjust to meet service delivery needs, as required

## 2.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Water Operations</b>	36.5	36.5	36.5	<del>36.5</del> <u>37</u>	<del>36.5</del> <u>37</u>
<b>Core Area Wastewater Operations</b>	23.5	23.5	23.5	<del>23.5</del> <u>25</u>	<del>23.5</del> <u>25</u>
<b>Saanich Peninsula &amp; Gulf Islands Operations</b>	16.8	16.8	16.8	<del>16.8</del> <u>17.3</u>	<del>16.8</del> <u>17.3</u>
<b>Water Treatment Operations</b>	10	10	10	10	10
<b>Total</b>	86.8	86.8	86.8	<del>86.8</del> <u>89.3</u>	<del>86.8</del> <u>89.3</u>

*Note: Senior Manager FTE split 0.5 (Water Operations) and 0.5 (Core/Saanich Peninsula Operations)*

## 3 Divisional Initiatives & Budget Implications

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>2016 - 2019</b>			
<b>Water and Wastewater Asset Management Plans</b>  <b>To be completed by end of <u>2017-2020</u></b>	As part of the comprehensive asset management planning work, develop long term operations and maintenance plans and corresponding financial plans for each utility – JDF Water, Saanich Peninsula Water, Core Area Wastewater, 18 local services.	Integrated Waste Management  Drinking Water  Regional Infrastructure	Core Budget

<b>Disaster Response Plan for water supply and distribution</b>  To be completed by end of 2017	Establish and implement disaster response plan and emergency water supply and distribution plan in collaboration with Infrastructure Engineering	Drinking Water  Regional Infrastructure  Protective Services	Capital Budget
<b><u>Title &amp; Estimated Completion Date</u></b>	<b><u>Description</u></b>	<b><u>Priority Reference (if applicable)</u></b>	<b><u>Budget Implications</u></b>
<b><u>2016 - 2019</u></b>			
<b>Cross Sectional Training and Development Project</b>  To be completed annually though 2019	Work with employees that are interested in opportunities to enhance their skills and abilities in other Infrastructure Operations work sections.	Corporate Development	Core Budget
<b>Standard Master Operating Procedure Manuals</b>  To be completed by end of 2019	Develop master operating procedure manuals for the major and small utility systems –  Regional Water Supply System, Juan de Fuca Water, Saanich Peninsula Water, Core Area Waste Water, Saanich Peninsula Waste Water, Local Service Areas	Drinking Water  Regional Infrastructure	Core Budget
<b><u>Water Operations Review</u></b>	<b><u>Review of Operations and Maintenance programs to determine balance between preventative maintenance and capital projects in terms of labour and costs.</u></b>	<b><u>Drinking Water</u></b>  <b><u>Regional Infrastructure</u></b>	<b><u>Core Budget</u></b>

## 4 Goals & Performance Indicators

Service Goals	Indicators or Measures
Maintain high quality water and wastewater infrastructure	<ul style="list-style-type: none"> <li>• Sustainable asset funding plans in place*</li> <li>• Complete 94% planned maintenance projects annually</li> <li>• Reduce the number of unplanned non-weather related wastewater overflows/bypasses annually (target no more than 1 overflow/bypasses annually by 2019)</li> <li>• Reduction in number of unplanned interruptions to water services each year* (baseline 2015)</li> </ul>
Ensure compliance with all regulatory requirements	<ul style="list-style-type: none"> <li>• Annual volume of drinking water supplied in compliance with water quality guidelines and regulations*</li> <li>• 100% Compliance with Island Health, Provincial and Federal drinking water health guidelines in all water service areas</li> </ul>

	<ul style="list-style-type: none"><li>• 100% Compliance rate with operating permit conditions for all wastewater system operating permits</li></ul>
Contribute to integrated resource management objectives	<ul style="list-style-type: none"><li>• Qualitative observations on demonstrated progress toward integration of liquid and solid wastes*</li></ul>

\*Corporate indicator – multiple divisions may contribute to this measure

Please see updated table of Performance Indicators below.

### KEY PERFORMANCE INDICATORS

Indicator Name	2016-2017 Planned	2016-2017 Projected	2017-2018 Planned																								
Maintenance: Planned Maintenance Completed	94%	90% <del>2%</del>	96 %																								
Regulatory Compliance: <sup>1</sup> # Regulatory Contraventions for drinking water quality	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	GVWS	0	JDF EA	0	SSI EA	0	SGI EA	0	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>1</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>1</td></tr> </table>	GVWS	0	JDF EA	1	SSI EA	0	SGI EA	1	<table border="1"> <tr><td>GVWS</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	GVWS	0	JDF EA	0	SSI EA	0	SGI EA	0
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Regulatory Compliance: <sup>1</sup> # Regulatory Contraventions for wastewater effluent quality exceedance	<table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	SPWWTP	0	JDF EA	0	SSI EA	0	SGI EA	0	<table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td><del>0</del>1</td></tr> <tr><td>SSI EA</td><td><del>4</del>5</td></tr> <tr><td>SGI EA</td><td><del>0</del>9</td></tr> </table>	SPWWTP	0	JDF EA	<del>0</del> 1	SSI EA	<del>4</del> 5	SGI EA	<del>0</del> 9	<table border="1"> <tr><td>SPWWTP</td><td>0</td></tr> <tr><td>JDF EA</td><td>0</td></tr> <tr><td>SSI EA</td><td>0</td></tr> <tr><td>SGI EA</td><td>0</td></tr> </table>	SPWWTP	0	JDF EA	0	SSI EA	0	SGI EA	0
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Safety: <sup>2</sup> Lost time incidents <sup>2</sup> # days lost <sup>2</sup> Avg days lost per claim	$\leq$ <del>40</del> 8 $\leq$ <del>420</del> 100 $\leq$ <del>45</del> 12	<del>8</del> 6 <del>400</del> 70 <del>43</del> 12	$\leq$ <del>8</del> 7 $\leq$ <del>400</del> 80 $\leq$ <del>42</del> 10																								
<u>Financial:</u> <sup>3</sup> Cost Recovery (Total Revenue/Total Costs)	<table border="1"> <tr><td><u>RWS</u></td><td><u>1.0</u></td></tr> <tr><td><u>JDFWD</u></td><td><u>1.0</u></td></tr> <tr><td><u>SPWS</u></td><td><u>1.0</u></td></tr> </table>	<u>RWS</u>	<u>1.0</u>	<u>JDFWD</u>	<u>1.0</u>	<u>SPWS</u>	<u>1.0</u>	<table border="1"> <tr><td><u>RWS</u></td><td><u>1.0</u></td></tr> <tr><td><u>JDFWD</u></td><td><u>1.0</u></td></tr> <tr><td><u>SPWS</u></td><td><u>1.0</u></td></tr> </table>	<u>RWS</u>	<u>1.0</u>	<u>JDFWD</u>	<u>1.0</u>	<u>SPWS</u>	<u>1.0</u>	<table border="1"> <tr><td><u>RWS</u></td><td><u>1.0</u></td></tr> <tr><td><u>JDFWD</u></td><td><u>1.0</u></td></tr> <tr><td><u>SPWS</u></td><td><u>1.0</u></td></tr> </table>	<u>RWS</u>	<u>1.0</u>	<u>JDFWD</u>	<u>1.0</u>	<u>SPWS</u>	<u>1.0</u>						
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<sup>1</sup> Note that these KPI's have been updated from % compliance to number of Regulatory Contraventions.

<sup>2</sup> Note that these KPI's have been updated from only Lost Time Injuries to additional metrics to reflect the severity of the incident.

<sup>3</sup> Note that this financial indicator is presented for each of the three Water Utility services, and is not limited solely to Infrastructure Operations. It relates to the expected financial performance of the relevant service as a whole.

## Contact

Name:            Matt McCrank  
 Title:            Senior Manager, Infrastructure Operations  
 Contact information: 250.474.9662; [mmccrank@crd.bc.ca](mailto:mmccrank@crd.bc.ca)

# Service Plan for Watershed Protection

2016-2019

Capital Regional District

*Date submitted: October 15, 2015*

*Revised: September 8, 2016*

*Revised: November 23, 2016*

*Revised: July 25, 2017*



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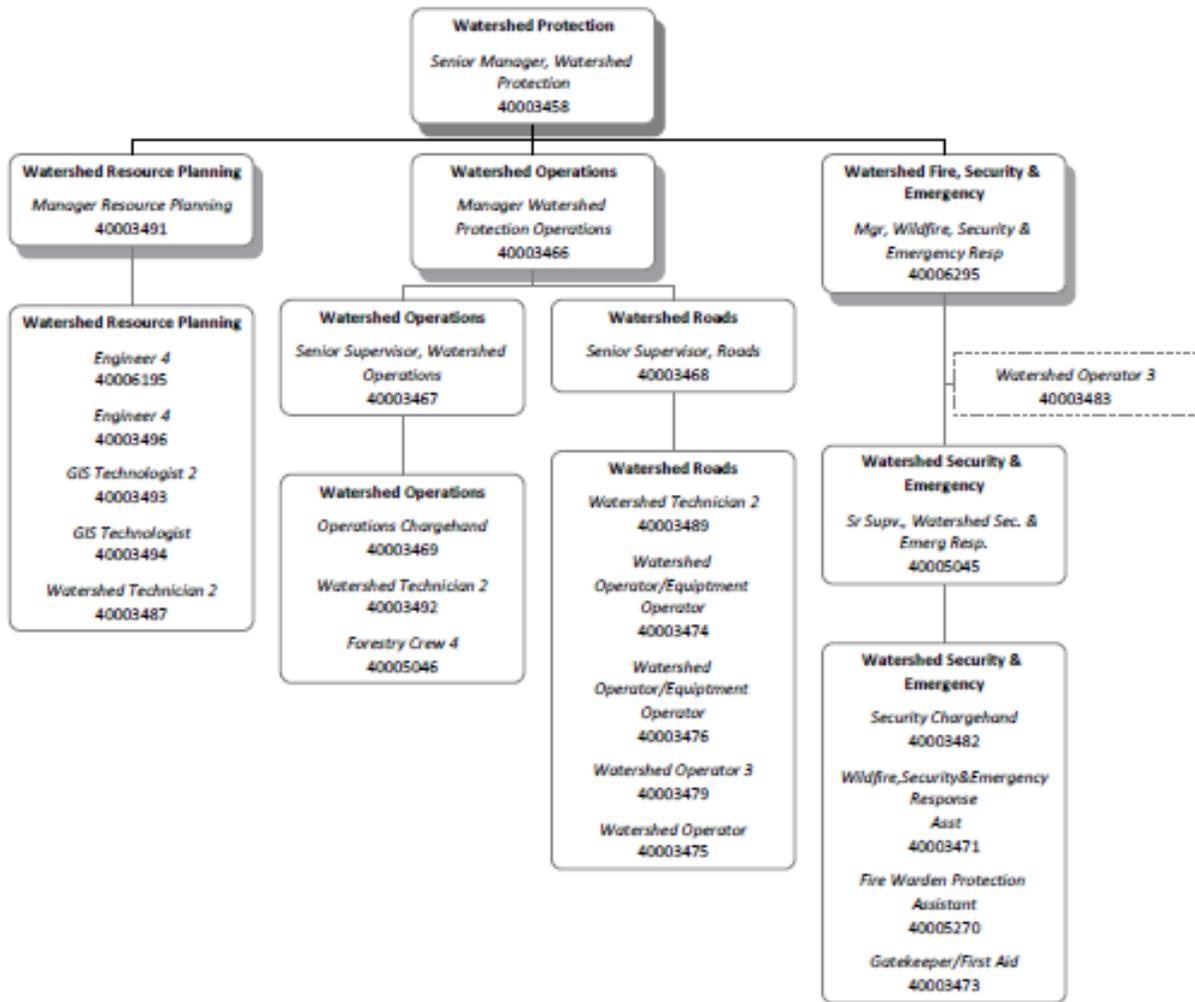
# 1 Overview

## 1.1 Division & Service Summary

The Watershed Protection Division provides forest land management of the 20,550 hectares of the Greater Victoria Water Supply Area to ensure high quality source drinking water for the Regional Water Supply System. The Division provides management in the following areas:

Service Purpose , Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
Wildfire, Security & Emergency Response: <ul style="list-style-type: none"> <li>• Watershed security</li> <li>• Wildfire and spill preparedness, prevention and response</li> </ul>	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee
Watershed Operations <ul style="list-style-type: none"> <li>• Silviculture, forest health and forest fuel management</li> <li>• Invasive plant management</li> <li>• Vegetation management (previously referred to as Facilities maintenance)</li> <li>• Road maintenance, upgrades and rehabilitation</li> </ul>	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee
Resource Planning <ul style="list-style-type: none"> <li>• <u>Wildlife management</u></li> <li>• <u>Watershed hydrology</u></li> <li>• Ecological inventories and analyses</li> <li>• Risk assessment and management</li> <li>• GIS and data management</li> <li>• Research and monitoring</li> </ul>	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee

# 1.2 Organization Chart



## 1.3 Key Trends, Issues & Risks – Service Specific

- **Closure of the Leech Water Supply Area (WSA)** to unrestricted access through amendment of the Greater Victoria Water Supply Area Protection Bylaw no. 2804 is expected to be the predominant issue for 2016 – 2019. Decisions made by the RWSC whether to fully close, allow recreational access by permit and other decisions will require implementation and may require new ways of doing business for Watershed Security.
- Preparation of the 2017 Regional Water Supply Strategic Plan has highlighted the need for detailed knowledge of the hydrological and biological parameters that affect future drinking water quantity and quality in the Leech Water Supply Area for the Regional Water Supply System.
- **First Nations** are increasingly interested in access into the GVWSA. There is uncertainty regarding the applicability of Douglas Treaty rights and the degree to which interests can be accommodated. Accommodation will require resources to implement. Negotiations between Regional Parks and First Nations may influence expectations for access to the GVWSA.
- The **opening of the Trans Canada Trail and Sea to Sea Regional Park** will increase trespass pressure and require greater security monitoring and infrastructure. Increased risk of trespass, wildfire, invasive species and other issues from changes in ownership, development and activities on adjacent lands (catchment and non-catchment) from sale of private forest lands and First Nations treaty settlements.
- **Climate Change** is expected to provide a longer period of high/extreme fire danger conditions and greater fuel availability within the GVWSA. Firefighting equipment upgrades will continue and there will be more emphasis in staff readiness (training, fitness and experience) for initial attack, and leadership development by gaining firefighting experience with the provincial Wildfire Management Branch. A warming climate also increases the risk of a large wildfire affecting the quality of source water. The large proportion of young stands in the Leech, and younger stands in the Goldstream and Sooke Water Supply Areas will continue to accumulate forest fuels in the short and medium term. Forest fuel management is laborious and therefore costly. There will be continued effort in the next 4 years to create fuel breaks in strategic locations to protect Sooke Lake Reservoir. Climate change has the potential to increase threats to water quality and forest health in the GVWSA and the potential for undesirable species to invade or expand their populations. Climate change will be considered in the watershed assessment and integrated into the risk assessment framework developed to protect water quality and ecosystem integrity in the GVWSA.
- There is a lack of comprehensive training and practical experience in responding to **hazardous materials spills** into water. Although the likelihood of a large spill into a source reservoir or main tributary is low, the potential consequences dictate a renewed emphasis on training and preparedness in the next four years.
- The effort and cost of **management of invasive plant and animal species** that may have a detrimental effect on water quality continues to rise. Public awareness and expectation regarding invasive species management is also growing in the Region. Greater emphasis will be placed on prevention of new species from entering and existing species from being spread within the GVWSA

## 1.4 Link to Priorities

### FIRST NATIONS

- prepare agreements to enable traditional uses of CRD lands and identify First Nations partnership opportunities for economic development activities

### CLIMATE CHANGE

- realign resources to effectively deliver on Board directives relating to climate change and implement policy and practices to demonstrate leadership in operations
- develop a climate framework to guide decision-making, establish a working group to identify climate change priorities and maximize partnerships

## DRINKING WATER

- protect and maintain an adequate supply of safe, reliable drinking water
- invest in the renewal and replacement of aging infrastructure to deliver an adequate supply of safe, reliable drinking water

## REGIONAL INFRASTRUCTURE

- ensure that resources are available for investment in current and future infrastructure, demonstrating efficiency and value for money and meeting regulatory and service requirements
- develop and implement asset management planning framework and tools to continue proactive and responsible management of assets and infrastructure, both natural and engineered

## BIODIVERSITY & ECOLOGICAL HEALTH

- assess service needs, respond to issues that threaten ecological health such as wildlife and invasive species, and profile best practices
- integrate a climate lens in our land acquisition strategies

## PUBLIC ENGAGEMENT & COMMUNICATIONS

- develop public participation strategies, including implications and performance metrics, as part of all major initiatives and implement more options for two-way dialogue and engagement
- share stories of collaboration and accomplishments

## EDUCATION, OUTREACH & INFORMATION

- expand on successful education partnerships and program delivery to include innovative in-person outreach and educational programs
- demonstrate transparency and increase visibility through the provision of accessible, relevant, timely and usable data and information

## 3.2 Services

### 3.12.1 Service Levels

Service Level Adjustments in Role/Scope					
Service	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Wildfire, Security &amp; Emergency Response</b>	<ul style="list-style-type: none"> <li>• Goldstream gate security and first aid: weekdays 7:30 – 4:30</li> <li>• Watershed emergency duty officer (WEDO) standby: 24h/day 365/year</li> <li>• Security patrols: weekends and holidays year round</li> <li>• Maintenance of 11 km of security fencing and &gt; 50 gates</li> <li>• Wildfire detection/suppression patrols during ≥ moderate fire hazard: daily</li> <li>• Wildfire suppression standby ≥ moderate fire hazard: daily</li> <li>• Wildfire detection air patrol: 1 – 2 times daily during high and extreme fire hazard</li> <li>• Monitoring and distribution of fire weather data and preparedness: daily May to Oct.</li> <li>• Delivery of capital projects</li> </ul>	<ul style="list-style-type: none"> <li>• Transition Emergency Preparedness Asst to Security Asst</li> </ul>	<ul style="list-style-type: none"> <li>• Addition of First Nations Environment and Culture Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to meet service delivery needs, as required</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to meet service delivery needs, as required</li> </ul>
<b>Watershed Operations</b>	<ul style="list-style-type: none"> <li>• Winter road maintenance: 94km</li> <li>• Summer road maintenance: 367 km</li> <li>• New road construction: 1–2 km</li> <li>• Roads brushed: 125 km</li> <li>• Roads assessed and managed for danger trees: 210 km</li> <li>• Roads upgraded: 5 km</li> <li>• Roads reclaimed: 5 km</li> <li>• New bridges installed: 2</li> <li>• Culverts installed/replaced: 25</li> </ul>	<ul style="list-style-type: none"> <li>• Review &amp; Assess</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to meet service delivery needs, as required</li> </ul>	Additional road maintenance for Leech WSA: <ul style="list-style-type: none"> <li>• 95 kms of road</li> <li>• 19 major drainage structures</li> <li>• 525 culverts</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust to meet service delivery needs, as required</li> </ul>

Service Level Adjustments in Role/Scope					
	<ul style="list-style-type: none"> <li>• Crossings maintenance: 20 bridges, 479 stream culverts and 1,122 drainage culverts</li> <li>• Invasive plants: 15-20 sites treated twice annually</li> <li>• Silviculture surveys: 50 ha per year</li> <li>• Silviculture brushing: 10 ha/year</li> <li>• Brushing: 18 ha dams and infrastructure <u>once or</u> twice per year <u>as required</u>;</li> <li>• Brushing/fire smarting facilities: 5 ha</li> <li>• Dams and reservoirs – inspection and removal of woody debris accumulations: monthly on 38 booms, dams, spillways</li> <li>• Delivery of capital projects</li> </ul>				
<b>Resource Planning</b>	<ul style="list-style-type: none"> <li>• Ecosystem information updates e.g. wetland mapping, TEM, forest cover.</li> <li>• Orthophotography update: every 2 years</li> <li>• Forest health survey: annual</li> <li>• Risk assessment and management planning</li> <li>• Partnering in climate change and other research in the GVWSA.</li> <li>• Monitoring of weather station fire weather data: daily May to October</li> <li>• Monthly monitoring and management of beaver</li> <li>• Monitoring and management of American bullfrogs: 3 times weekly for 6 months</li> <li>• Monitoring and management of Canada geese: daily for 6 months</li> <li>• <del>Plan and oversee implementation of actions from Greater Victoria Water Supply System Strategic Plan</del></li> <li>• Public Tours – 18 tours over 6 days</li> </ul>	<ul style="list-style-type: none"> <li>• Update of the Watershed Assessment</li> <li>• GVWSA Climate change adaptation strategy</li> <li>• <u>Biosecurity strategy</u></li> <li>• <del>Expanded public tours – 36 tours within a 3 to 4 month period</del></li> <li>• Adjust to meet service delivery needs, as required</li> </ul>	<ul style="list-style-type: none"> <li>• Update of the Watershed Assessment</li> <li>• GVWSA Management Plan</li> <li>• <u>Assist with Regional Water Supply Strategic Plan</u></li> <li>• Plan forest hydrology program</li> <li>• Fish stream assessments</li> <li>• Adjust to meet service delivery needs, as required</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Update of the Watershed Assessment</u></li> <li>• State of the GVWSA Report</li> <li>• <u>Regional Water Supply Strategic Plan</u></li> <li>• <u>Biosecurity strategy</u></li> <li>• <u>Expanded public, First Nations and school tours program</u></li> <li>• Implement forest hydrology program</li> <li>• <u>Fish stream assessments</u></li> </ul>	<ul style="list-style-type: none"> <li>• Report out on State of the GVWSA</li> <li>• <u>Regional Water Supply Strategic Plan</u></li> <li>• <u>Expanded public, First Nations and school tours program</u></li> <li>• <u>Fish stream assessments</u></li> <li>• <u>forWater Network project implementation</u></li> <li>• Adjust to meet service delivery needs, as required</li> </ul>

Service Level Adjustments in Role/Scope					
				<ul style="list-style-type: none"> <li>• <del>for</del>Water Network project planning</li> <li>• Adjust to meet service delivery needs, as required</li> </ul>	

### 3.22.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Wildfire, Security &amp; Emergency Response</b>	8.33	8.33	<b>7.33</b>	<b>7.33</b>	<b>7.33</b>
<b>Watershed Operations</b>	11.33	11.33	11.33	11.33	11.33
<b>Resource Planning</b>	6.33	6.33	6.33	<b>7.33</b>	<b>7.33</b>
<b>Total</b>	26 FTE	26 FTE	<b>25 FTE</b>	<b>26 FTE</b>	<b>26 FTE</b>

- 1.0 FTE decrease in 2017 in Wildfire, Security & Emergency Response with Resident Caretaker position moved to ~~Customer and Technical Services~~ the Infrastructure Engineering division.
- 1.0 FTE increase in 2018 in Resource Planning for a Watershed Technologist ~~and~~ Information Officer ~~position~~ to provide capacity for resource planning projects, hydrology field monitoring and public tour expansion.

## 3 Divisional Initiatives & Budget Implications

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Amendment of the Greater Victoria Water Supply Area Protection Bylaw no. 2804</b>  April 2016	The Leech Water Supply Area is not included in Bylaw 2804. An amendment would incorporate the Leech WSA, make provision for authorized activities in the Leech and clarify existing Bylaw language.	Drinking Water	Core budget
<b>Traditional Use Access Agreement</b>  April 2016	A traditional use access agreement is being developed with a local First Nation for the Leech WSA while not in use for drinking water supply.	First Nations	Core budget
<del><b>Security upgrade – Goldstream Entrance to the GVWSA</b></del>  <del>November 2016</del>	<del>The Goldstream entrance to the GVWSA was re-designed in 2015 and will be constructed in 2016 to address security and biosecurity needs.</del>	<del>Regional Infrastructure  Biodiversity &amp; Ecological Health  Drinking Water</del>	<del>Capital</del>
<del><b>Climate Change Adaptation Strategy for the GVWSA</b></del>  <del>December 2016</del>	<del>Using a common framework, an adaptation strategy for climate change will be developed for the GVWSA. The strategy will become part of the larger climate change strategy for the Regional Water Supply System.</del>	<del>Climate Change  Drinking Water</del>	<del>Core budget and external funding (assistance from 3 month intern position which is grant funded through Pacific Institute for Climate Solutions)</del>
<del><b>Biosecurity Strategy for the GVWSA</b></del>  <del>December 2016</del>	<del>Increasing new and existing invasive species may affect drinking water quality. This strategy will provide new tools and standards for preventing the establishment of undesirable species in the GVWSA.</del>	<del>Biodiversity &amp; Ecological Health  Drinking Water</del>	<del>Core budget</del>

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<del>Public tours expansion</del>  <del>June 2018</del>	<del>The current model of offering tours to the public during only one week relying on senior staff to lead the tours has remained unchanged for 26 years. A revised model of tour offerings over several months a year will provide more tour opportunities at better times for the public and schools for lower overall cost.</del>	<del>Public Engagement &amp; Communications  Education, Outreach &amp; Information</del>	<del>Continuous supplementary budget request for 1.0 FTE in Resource Planning.</del>
Leech Watershed Restoration  Dec 2016	<del>Upgrade of Weeks Main north</del>  • Deactivation of Survey Main (year 1) • <u>Construction of Horton Connector and Worley Lake access</u>	Regional Infrastructure	Capital
Forest Fuel Management Projects  2016 - 2019	Establishment and maintenance of forest fuel breaks to help protect Sooke Lake Reservoir from the effects of large scale wildfire.	Climate Change	Core budget
2017			
<u>Security upgrade – Goldstream Entrance to the GVWSA</u>  <u>November 2016</u>	<del>The Goldstream entrance to the GVWSA was re-designed in 2015 and will be constructed in 2016 to address security and biosecurity needs.</del>	<u>Regional Infrastructure</u>  <u>Biodiversity &amp; Ecological Health</u>  <u>Drinking Water</u>	<u>Capital</u>
<u>Climate Change Adaptation Strategy for the GVWSA</u>  <u>December 2016/7</u>	<u>Using a common framework, an adaptation strategy for climate change will be developed for the GVWSA. The strategy will become part of the larger climate change strategy for the Regional Water Supply System.</u>	<u>Climate Change</u>  <u>Drinking Water</u>	<u>Core budget and external funding (assistance from 3 month intern position which was grant funded through Pacific Institute for Climate Solutions)</u>
<del>Update Watershed Assessment</del>  <del>Dec 2017</del>	<del>Update the 1999 Watershed Assessment</del>	<del>Drinking Water</del>  <del>Biodiversity &amp; Ecological Health</del>	<del>Core budget</del>

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>Watershed Management Plan</b>  <b>Nov 2017</b>	The management of the GVWSA will be documented and results of the watershed assessment and <b>biosecurity</b> and climate change strategies will be incorporated.	Drinking Water Regional Infrastructure Climate Change Biodiversity & Ecological Health	Core Budget
<b>Assessment of Streams in the GVWSA</b>  <b>2017-2019</b>	A three year program to assess the fish habitat potential, channel stability, and proper functioning condition of streams in the GVWSA.	Biodiversity & Ecological Health	Capital
<b>Leech Watershed Restoration</b>  <b>Dec 2017</b>	<del>Upgrade of Weeks Main running surface and minor culverts</del>  <ul style="list-style-type: none"> <li>• <u>Deactivation of Survey Main year 2</u></li> <li>• <u>Cragg Creek Bridge upgrade</u></li> <li>• <u>Upgrade of Cragg Main and Horton Main running surface and minor culverts</u></li> </ul>	Regional Infrastructure	Capital
<del><b>Waugh Creek Bank Stabilization</b></del>  <del><b>Oct 2017</b></del>	<del>Waugh Creek is under cutting the fill slope of Kapeer Main which is the primary access to Sooko Lake Dam and the Water Supply Area. A stabilization project (rip rap placement and slope reinforcement) is required to prevent further damage.</del>	<del>Regional Infrastructure            Drinking Water</del>	<del>Capital</del>
<b>2018</b>			
<del><b>Regional Water Supply Strategic Plan</b></del>  <del><b>2018 – 2019</b></del>	<del>The Resource Planning section will provide significant support to the department in developing a new strategic plan.</del>	<del>Drinking Water</del>	<del>Core budget with supporting studies funded by Capital</del>

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<u><a href="#">Biosecurity Strategy for the GVWSA</a></u>  <u><a href="#">December 20168</a></u>	<u><a href="#">Increasing new and existing invasive species may affect drinking water quality. This strategy will provide new tools and standards for preventing the establishment of undesirable species in the GVWSA.</a></u>	<u><a href="#">Biodiversity &amp; Ecological Health</a></u>  <u><a href="#">Drinking Water</a></u>	<u><a href="#">Core budget</a></u>
<u><a href="#">Public tours expansion</a></u>  <u><a href="#">June 2018</a></u>	<u><a href="#">The current model of offering tours to the public during only one week relying on senior staff to lead the tours has remained unchanged for 26 years. A revised model of tour offerings over several months a year will provide more tour opportunities at better times for the public. First Nations and schools for lower overall cost.</a></u>	<u><a href="#">Public Engagement &amp; Communications</a></u>  <u><a href="#">Education, Outreach &amp; Information</a></u>	<u><a href="#">Continuous supplementary budget request for 1.0 FTE in Resource Planning.</a></u>
<u><a href="#">Security upgrade – Goldstream Entrance to the GVWSA</a></u>  <u><a href="#">November 2018</a></u>	<u><a href="#">The Goldstream entrance to the GVWSA was re-designed in 2015 and will be constructed in 20168 to address security and biosecurity needs.</a></u>	<u><a href="#">Regional Infrastructure</a></u>  <u><a href="#">Biodiversity &amp; Ecological Health</a></u>  <u><a href="#">Drinking Water</a></u>	<u><a href="#">Capital</a></u>
<u><a href="#">Update Watershed Assessment</a></u>  <u><a href="#">Dec 2018</a></u>	<u><a href="#">Update the 1999 Watershed Assessment</a></u>	<u><a href="#">Drinking Water</a></u>  <u><a href="#">Biodiversity &amp; Ecological Health</a></u>	<u><a href="#">Core budget support from supplementary budget request for 1.0 FTE in Resource Planning</a></u>
<u><a href="#">State of the GVWSA Report</a></u>  <u><a href="#">Dec 2018</a></u>	<u><a href="#">Development of a set of sustainability indicators for the health and management of the GVWSA.</a></u>	<u><a href="#">Drinking Water</a></u>  <u><a href="#">Climate Change</a></u>	<u><a href="#">Core budget</a></u>
<u><a href="#">Leech forest hydrology monitoring network</a></u>  <u><a href="#">Nov 2018</a></u>	<u><a href="#">Implementation of a network of hydrology monitoring stations in the Leech WSA</a></u>	<u><a href="#">Regional Infrastructure</a></u>	<u><a href="#">Capital and Core budget support from supplementary budget request for 1.0 FTE in Resource Planning</a></u>
<u><a href="#">Leech Watershed Restoration</a></u>  <u><a href="#">Dec 2018</a></u>	<u><a href="#">Development Assessment and planning of Lazar Mainroad infrastructure in north Leech</a></u>  <u><a href="#">Leech road maintenance</a></u>	<u><a href="#">Regional Infrastructure</a></u>	<u><a href="#">Capital and continuous supplementary request for \$7550,000 for Leech road maintenance.</a></u>

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<del>Leech River/Weeks Main Bridge replacement</del>  <b>Oct 2018</b>	<del>The Leech River crosses Weeks Main through a large culvert. The culvert is undersized and needs to be replaced with a concrete bridge to restore proper water flow and safe road passage.</del>	<u>Regional Infrastructure</u>	<u>Capital</u>
<u>Replacement of Goldstream Main bridge</u>  <b>Oct 2019<del>8</del></b>	<u>The existing bridge is undersized and poses a risk to water quality and fish habitat and should be replaced with a longer concrete structure with greater clearance.</u>	<u>Regional Infrastructure</u>	<u>Capital</u>
<u>Waugh Creek Bank Stabilization</u>  <b>Oct 2017<del>8</del></b>	<u>Waugh Creek is under cutting the fill slope of Kapoor Main which is the primary access to Sooke Lake Dam and the Water Supply Area. A stabilization project (rip-rap placement and slope reinforcement) is required to prevent further damage.</u>	<u>Regional Infrastructure</u>  <u>Drinking Water</u>	<u>Capital</u>
<b>2019</b>			
<b>Leech Watershed Restoration</b>  <b>Dec 2019</b>	Leech road maintenance  West Leech road upgrades/deactivation	<u>Regional Infrastructure</u>	Core budget (continuous supplemental request of <del>\$5075</del> ,000 in 2018)  <u>Capital</u>
<del>Replacement of Goldstream Main bridge</del>  <del>Oct 2019</del>	<del>The existing bridge is undersized and poses a risk to water quality and fish habitat and should be replaced with a longer concrete structure with greater clearance.</del>	<u>Regional Infrastructure</u>	<u>Capital</u>
<u>Leech River/Weeks Main Bridge replacement and Weeks North Bridge construction</u>  <b>Oct 2018<del>9</del></b>	<u>The Leech River crosses Weeks Main through a large culvert. The culvert is undersized and needs to be replaced with a concrete bridge to restore proper water flow and safe road passage.</u>  <u>Upgrade of Weeks Main north access</u>	<u>Regional Infrastructure</u>	<u>Capital</u>

|

## 4 Goals & Performance Indicators

Service Goals	Indicators or Measures
Increase strategies and activities to protect the drinking water supply and improve access to catchment lands	<ul style="list-style-type: none"> <li>• Bylaw 2804 Amended - Leech entrances secured and new enforcement procedures in place.</li> <li>• Increase the number of staff with fire suppression fitness and training as well as qualified and experienced initial attack crew leaders by 2018 (baseline 2015 levels)</li> <li>• # of kilometres of roads maintained, upgraded or reclaimed associated with drinking watershed operations annually*</li> <li>• Number of watershed forest fuel management projects completed annually*</li> <li>• % of capital projects completed on time and on budget*</li> <li>• Completion of Biosecurity Strategy by end of 201<del>8</del><u>6</u>.</li> </ul>
Enhance information and data collection activities to support resource planning	<ul style="list-style-type: none"> <li>• Completion of Watershed Assessment by end of 201<del>7</del><u>8</u>.</li> </ul>
Contribute to corporate and regional climate action objectives	<ul style="list-style-type: none"> <li>• Completion of GVWSA climate change adaptation strategy by end of 201<del>6</del><u>7</u>.</li> </ul>
Increase public engagement and educational efforts	<ul style="list-style-type: none"> <li>• <u>Total P</u>articipation <u>rates</u> in <u>CRD-watershed</u> public tours annually*</li> </ul>

\*Corporate indicator – multiple divisions may contribute to this measure.

**Please see revised table below**

### KEY PERFORMANCE INDICATORS

Indicator Name	201 <del>7</del> <u>6</u> Planned	201 <del>7</del> <u>6</u> Projected	201 <del>7</del> <u>8</u> Planned
Watershed roads:			
Maintained	367 km	<del>340</del> <u>0</u> km	367 km
Upgraded	5 km	5 km	5 km
Reclaimed	5 km	<del>6</del> <u>5</u> km	5 km
Capital projects			
% on time	100% on time	73 % on time	100% on time
% on budget	100% on budget	73 % on budget	100% on budget
Participation rates in CRD public tours annually 2015 = 682	<del>2348</del> <u>700</u> tours 700 participants	<del>696880</del> <u>2229</u> tours participants	<del>7001080</del> <u>2336</u> tours participants

## Contact

Name: Annette Constabel, MSc, RPF, PMP  
 Title: Senior Manager, Watershed Protection  
 Contact information: 250-391-3556; [aconstabel@crd.bc.ca](mailto:aconstabel@crd.bc.ca)

# Service Plan for Customer and Technical Services

2016-2019

Capital Regional District

*Date submitted: October 7, 2015*

*Revised: ~~August~~ November 23, 2017~~6~~*



Making a difference...together

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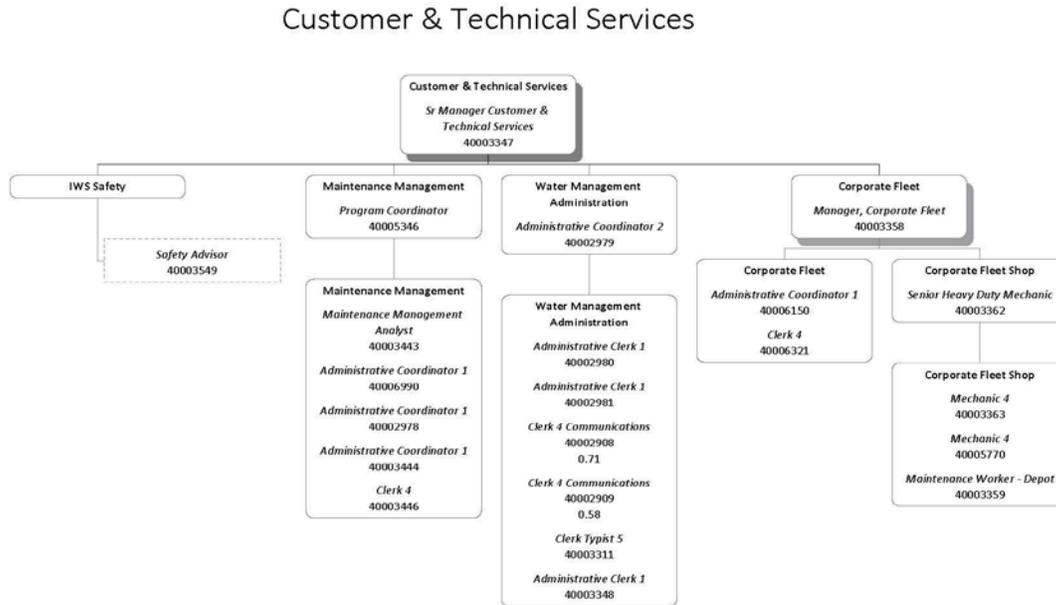
# 1 Overview

## 1.1 Division & Service Summary

Customer and Technical Services Division provide a range of services to support Integrated Water Services and other departments of the Capital Regional District, including Fleet Management Services, Maintenance Management Services, Integrated Water Services Administrative Support Services and Safety ~~Advisor Services~~ Program Support.

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p><b>Administrative Support Services:</b> ensures administrative standards and staff needs are achieved, including administration of records system, document processing, scheduling and recording meetings, and the scheduling and tracking of compliance and professional development training courses and hours.</p>	<p>All IWS Divisions, Local Service Committees/Commissions, and other CRD staff at 479 Island Hwy.</p>	<p>Internal recoveries through allocations</p>	<p>Through various standing service Commissions and Committees as required.</p>
<p><b>Fleet Management Services:</b> management of 300 vehicles and equipment to achieve a well maintained, compliant, economical and reliable fleet. This service includes managing vehicle and equipment procurement and disposal; preventive maintenance and repair programs for vehicles and equipment; monitoring driver abstracts, review collisions, vehicle and driver files, perform commercial vehicle inspections and arrange training to provide a Fleet Safety program; data entry, review and reporting; development of policy, procedures and standards for fleet usage and upkeep.</p>	<p>CRD Departments</p>	<p>Internal recovery through allocations to IWS divisions and labour rates</p>	<p>Through various standing service Commissions and Committees as required.</p>
<p><b>Maintenance Management Services:</b> maintenance management and purchase order processing to maintain assets, inform decision-making, and to assign work and costs appropriately. This is service includes: managing data for infrastructure and equipment; work order creation and completion; Preventative Maintenance (PM) planning; processing purchase orders; data entry, analysis and reporting; monitor user activities and data integrity; and user support and training.</p>	<p>IWS Operations and Centralized Fleet section</p>	<p>Internal recoveries through allocations</p>	<p>Through various standing service Commissions and Committees as required.</p>
<p><b>Safety <del>Advisor Services</del> Program Support:</b> Providing Occupational Health and Safety support to ensure required documentation is in place and informed decisions are made. This service includes: developing policy and procedures; assisting in incident investigations and hazard assessments; participating in JOH&amp;S meetings; researching OH&amp;S regulations, Workers Compensation Act and industry; completing required documentation for variances and other permits.</p>	<p>CRD Departments</p>	<p>Internal recoveries through allocations</p>	<p>Through various standing service Commissions and Committees as required.</p>

# 1.2 Organization Chart



E & O. E. Regular Positions Only

# 1.3 Key Trends, Issues & Risks – Service Specific

There is an increasing demand by CVSE Inspectors for accurate and well maintained records and safety programs that meet the requirements of the BC Motor Vehicle Act division 37 and National Safety Code. At present there are not enough resources in Fleet to meet this demand.

The growth and renewal of assets, the changing needs of managers, supervisors and users and the requirement to update and maintain the asset data and preventative maintenance programs results in an increased demand on staffing resources. The opportunity exists (with appropriate resourcing) to expand the service provided through the section to include other corporate assets.

~~Ongoing changes to the requirements of the Workers Compensation Act and Occupational Health and Safety Regulations impact workload and place a financial burden on operating running a risk that compliance could be sacrificed in favour of providing a minimum service to meet budget constraints.~~

Assumption that the department safety program will still reside within the CTS division

Assumption that Facilities Management will provide support to Infrastructure Operations with the increased need for maintenance inspections of water and wastewater facility buildings.



## 1.4 Link to Board Strategic Priorities

The Division will provide support to all divisions within the IWS Department across a variety of services on corporate projects and in support of core service delivery, and as such may have a role in supporting numerous priorities. Specifically the division has a direct link to the following priorities:

### CLIMATE CHANGE

- realign resources to effectively deliver on Board directives relating to climate change and implement policy and practices to demonstrate leadership in operations
- develop a climate framework to guide decision-making, establish a working group to identify climate change priorities and maximize partnerships

### CLIMATE ACTION

- continue to use a climate lens when making decisions on vehicle replacements and policies that demonstrate how decisions align with CRD's ~~consider~~ GHG reduction target, climate action objectives and strategic priorities.
- Establish a fleet management approach that includes: GHG footprint calculations and reports when possible and install monitoring system to gather data on vehicle operation and utilization
- Use a climate lens for reduction of GHG emissions in existing buildings, facilities and infrastructure. ~~when replacing vehicles and working on the vehicle policies related to GHG reductions~~

### REGIONAL INFRASTRUCTURE

- ensure that resources are available for investment in current and future infrastructure, demonstrating efficiency and value for money and meeting regulatory and service requirements
- develop and implement asset management planning framework and tools to continue proactive and responsible management of assets and infrastructure, both natural and engineered

### CORPORATE DEVELOPMENT

- evaluate the use of innovative technologies and corporate support systems for continuous improvement and effective service delivery
- ensure CRD service delivery is effectively supported through the development of best practices
- enhance and ensure effective financial and audit reporting practices
- support continued investments in workforce education, training and development

## 2 Services

### 2.1 Service Levels

Service	Service Level Adjustments in Role/Scope				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Administrative Support</b>	<ul style="list-style-type: none"> <li>• Maintains over 5200 files in the record system;</li> <li>• Processing of correspondence documents for over 35 employees and approx. 70 staff reports per year.</li> </ul>	Review & Assess	Adjust to meet service delivery needs, as required.	Review & Assess	Adjust to meet service delivery needs, as required.

Service Level Adjustments in Role/Scope					
Service	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
	<ul style="list-style-type: none"> <li>Scheduling and record minutes for more than 30 IWS teams and committees. (139 internal and 41 external meetings per year).</li> <li>Provide training coordination and tracking for more than 120 employees</li> </ul>				
<b>Fleet Management</b>	<ul style="list-style-type: none"> <li>Manage 95% of CRD fleet procurement &amp; disposal.</li> <li>Manage 85% of CRD fleet preventive maintenance and perform repairs.</li> <li>Provide a limited fleet safety program of establishing driver records, provide driver training and collision review (2015: 270 files for CRD drivers created of which 6% are complete)</li> </ul>	<p>Manage 100% of CRD fleet procurement and disposal</p> <p>Review &amp; Assess</p> <p>Complete driver record setup and driver abstract review.</p>	<p>Review &amp; Assess</p> <p>Manage 100% Perform 50%</p> <p>Maintain driver records and implement a fleet safety policy and program.</p>	<p>Adjust to meet service delivery needs, as required.</p> <p>Manage 100% Perform 75%</p> <p>Administer a comprehensive fleet safety program</p>	<p>Adjust to meet service delivery needs, as required.</p> <p>Manage 100% Perform 75%</p> <p>Maintain compliance</p>
<b>Maintenance Management</b>	<ul style="list-style-type: none"> <li>Maintain 36,000 asset records by collecting, reviewing and entering information.</li> <li>Maintain 19,000 work orders per year.</li> <li>Maintain 3,500 preventative maintenance plans.</li> <li>Data entry, analysis, monitoring and reporting</li> <li>Process 6,000 purchasing transactions per year.</li> <li>User support and training</li> </ul>	Eliminate existing back log of 720 hrs of data collection and review	Eliminate existing back log of 740 hrs of data input and maintenance plan creation	Maintain asset records and maintenance plans	Review & Assess
<b>Safety Advisor Support</b>	<ul style="list-style-type: none"> <li><u>Provide Safety Program support to the department</u> Guidance and advice, research, site visits and procedure development</li> </ul>	Review & Assess	Adjust to meet service delivery needs, as required.	Review & Assess	Adjust to meet service delivery needs, as required.

## 2.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
Administrative Support	7.29	7.29	8.29	8.29	8.29
Fleet Services	7	7	7	7	7
Maintenance Management	5	6	6	6	6
Safety Advisor	1	1	1	<del>1</del> 04	4
<b>Total</b>	20.29	21.29	22.29	<del>22</del> 1.29	<del>22</del> 1.29

### 2016

#### **Fleet Clerk ( No new FTE pending use of IWS Custodian position)**

The administration required to maintain records for regulatory compliance, policy and maintenance planning requires an additional FTE. Areas of current noncompliance include driver records and hours of work for drivers, areas of backlog include vehicle records, maintenance data and asset data.

#### **Maintenance Management Clerk**

A Maintenance Management Clerk is required to maintain asset information and a related maintenance plan, provide transactional reports, monitoring and improve user support and documentation. This position will be essential to ensure the backlog of a maintenance plan setup is eliminated with all assets requiring operation and maintenance being included in the management system, then working closely with operations staff to administer the maintenance planning and maintenance work flow moving forward.

### 2017

1 FTE transferred from Watershed Protection to Customer & Technical Services (the total FTE count for IWS remains the same).

### 2018

1 FTE transferred from Customer & Technical Services to Human Resources.

## 3 ~~3~~ Divisional Initiatives & Budget Implications

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Fleet Maintenance Study</b> <u>On-schedule-complete</u>	Under take a study of industry practices to optimize best practices for CRD fleet maintenance.	Climate Change Regional Infrastructure Corporate Development	\$60,000 single supplementary
<b>Fleet Management Software</b> to be completed in 2018	To facilitate all aspects of fleet management in one platform. Review Fleet requirements and ability of existing ERP system to meet the needs and implement.	Climate Change Regional Infrastructure Corporate Development	\$150,000 capital project
<b>Fleet Card (fuel/maintenance)</b> on schedule <u>for completion in 2017</u>	Implement a single source fuel/maintenance procurement card system to improve fuel use tracking and reporting and management of external service provider agreements	Climate Change Regional Infrastructure Corporate Development	\$25,000 set up costs single supplementary and \$3.25 per month per vehicle continuous supplementary.
<b>Maintenance Plans</b> <b>Completion - ongoing</b>	<p>The maintenance management clerks are responsible to ensure that each of the five service area's that use SAP PM receives the support needed to maintain assets and make informed decisions regarding maintenance programs.</p> <p>Create maintenance management plans for all assets in backlog.</p> <p>Improve access, reliability and effectiveness of SAP PM documentation, estimates on work orders</p> <p>Assist in SAP PM development projects such as effective use of Syclo, electronic document management and ongoing development and testing.</p>	Climate Change Regional Infrastructure Corporate Development	\$80,000 continuous supplementary (1 x FTE for new Maintenance Management Clerk)
<b>National Water and Wastewater Benchmarking Initiative (NWWBI)</b>	Benchmark the Regional Water System and Juan De Fuca Distribution system to 45 utilities across Canada.	Regional Infrastructure	Core Budget

Title & Estimated Completion Date	Description	Priority Reference (if applicable)	Budget Implications
<b>Ongoing initiative</b> <del>to be started</del>	The benchmarks represent business outcomes that are feasible, practical and useful to attain such goals as protection of the environment, reliable service and assets and meet service levels and economic efficient standards.		
<b>2017</b>			
<b>Asset Data and Maintenance Plans</b> <del>completed</del>	Capture and enter all data associated with critical IWS equipment, and associating preventative Maintenance scheduling (1,500hrs of combined backlog)	Climate Change Regional Infrastructure Corporate Development	Core budget (\$15,000 Labour allocation from IWS Ops to collect data and auxiliary resource to enter data)
<b>2018</b>			
<b>Fleet Safety Program</b>	Design, implement and administer a comprehensive Fleet Safety Program to ensure vehicle and driver records and training meet regulatory compliance. <u>Review with the input from the Corporate Safety Manager.</u>	Corporate Development	Funding requirements TBD <del>in 2018</del> . following <del>2016 Fleet Safety Program Review</del>
<b>2019</b>			
<b>Continuation of projects as above</b>			

## 4 Goals & Performance Indicators

Service Goals	Indicators or Measures
Contribute to corporate climate action objectives	<ul style="list-style-type: none"> <li>Number and impact of projects and partnerships that demonstrate support for reductions in greenhouse gas (GHG) emissions and for increased climate resiliency*</li> <li>Annual GHG emissions of corporate fleet* (baseline year 2016)</li> </ul>
Increase knowledge and compliance with corporate fleet policies	<ul style="list-style-type: none"> <li>Complete CRD Central Fleet Policies and Strategic Plan by end of 201<u>8</u><del>6</del></li> </ul>
Maintain high quality support to IWS and other CRD divisions	<ul style="list-style-type: none"> <li>Increase administrative and business process documentation for divisional support to the IWS department annually (baseline 60% in 2015)</li> <li>Measure internal customer satisfaction rates with Administration, Centralized Fleet, Maintenance Management and Safety <u>in 2018</u> (target minimum of 75% satisfaction rate annually)</li> </ul>

\*Corporate indicator – multiple divisions may contribute to this measure

Please see revised table below

### KEY PERFORMANCE INDICATORS

Indicator Name	2016 Planned	2016 Projected	2017 Planned
Vehicle and equipment Policies and Procedures	Complete update of policies	Complete 10 Fleet policies related to GHG and a Green Fleet.	<u>Appoint consultant to complete</u> <del>Complete</del> Fleet management policies
GHG emissions	Fuel card implementation to measure fuel use	Complete business case for implementation	Complete fuel card implementation
<u>Fleet</u> Maintenance Study	Complete study		Develop <u>corporate initiatives standards</u> from study results <u>in 2018</u>

## Contact

Name: Jan van Niekerk  
 Title: Senior Manager, Customer and Technical Services  
 Contact information: 250.474.9655; [jvanniekerk@crd.bc.ca](mailto:jvanniekerk@crd.bc.ca)

**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, OCTOBER 18, 2017**

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**SUBJECT REGIONAL WATER SUPPLY SERVICE - 2018 OPERATING AND CAPITAL BUDGET**

**ISSUE**

The purpose of the report is to provide an overview of the draft 2018 Regional Water Supply Service budget, highlighting the proposed significant changes and additions. The report generally follows the sequence of information provided in the attached draft budget document (Attachment 1).

**BACKGROUND**

This draft 2018 Regional Water Supply Service budget has been prepared for the Regional Water Supply Commission's (Commission) consideration. The Regional Water Supply Commission's Budget Subcommittee met on September 20, 2017 to review the draft 2018 service budget in order to make budget recommendations to the Commission in October, who will in turn, make budget recommendations to the CRD Board through the Committee of the Whole in November. The draft 2018 Regional Water Supply Service budget has been prepared considering the CRD Board's 2018 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, and undertaking infrastructure improvements, and upgrades to maintain service levels across the region including incremental ongoing operational and maintenance requirements. The following sets out the key components of the budget.

**2017 Year End Financial Projections**

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

- Supply System operating expenditures	\$392,276 (3.3%)
- Agricultural water rate funding	\$100,000 (8.3%)
- Capital fund transfer	\$17,766 (0.4%)
- Capital transfer to equipment (fleet) replacement fund	\$0 (0.0%)
- Capital transfer to debt reserve fund	-\$35,000 (-43%)
- Debt servicing – principal and interest expenditures	-\$69,792 (-0.6%)
- Revenue – bulk water sales	\$442,500 (1.5%)
- Revenue – other	-\$37,250 (6.3%)

**2018 Budget**

**Rate Base**

The rate base for 2018 has decreased by \$760,722 from 2017 (Page 3 of the budget document). This reduction relates to depreciation of existing physical plant, projected physical plant additions

and a higher value of construction work in progress between 2017 and 2018. The construction work in progress primarily relates to the Japan Gulch Disinfection Project. The changes in physical plant and work in progress are listed on page 4 of the budget document, and are used to project the 2017 year end total physical plant value, and determine the 2018 rate base.

### Revenue Requirement

The revenue requirement for 2018 has increased by \$1,210,519. This is resulting from an increase in operational expenses of \$1,431,570, increased depreciation expenses of \$126,609 net of expired depreciation on existing assets, and a net decrease in the return on the base of \$348,200. The decrease in return on rate base is a result of more assets being funded by equity rather than debt compared to 2017 (Page 5 of the budget document).

### Operating Budget

The 2018 operating budget reflects an 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 2018 operating budget increase is \$806,118, and additional budget requests for one-time and ongoing expenditures in the amounts of \$75,000 and \$525,452 respectively. The core operating budget increase is primarily due to supply system operations labour budget adjustments necessary to support increasing repair and maintenance tasks and increasing safe work practice requirements. The one-time and ongoing expenditures include nine separate requests which are detailed on pages 6-12 of the budget document. Operating budget forecasts for 2019 through 2022 have been presented for information.

### Agricultural Water Rate Funding

The total budget for the agricultural water rate funding has been increased by \$25,000 to \$1,225,000 to better align with the projected 2017 and anticipated 2018 claims, taking into consideration the higher than expected agricultural demand in 2015 and 2016 related to the unseasonal weather and the increasing spread between the agricultural water rate and the municipal water rates, which results in higher municipal refunds funded by this budget. The 2018 agricultural water rate has been maintained at the 2017 rate of \$0.2105 per cubic metre. Further analysis of the agricultural rate funding model and overall budget impact and an assessment of the benefit to the region that results from providing the agricultural water rate is recommended. Updating the region's agricultural land use inventory, crop production and agricultural water demand model would provide information that would help inform future budget decisions. It is proposed to further explore this initiative with the BC Ministry of Agriculture and CRD Regional Planning staff. A summary of the agricultural water volumes and agricultural water rate payments for 2011-2016 is attached (Attachment 2).

### Capital Budget

There are a number of capital projects planned for 2018 with a total value of \$13,199,063, plus \$695,000 in projects cost shared with the Juan de Fuca Water Distribution Service (pages 18-56 of the budget document). The major projects in 2018 include continued restoration of the Leech Water Supply Area including road and bridge improvements, upgrades to the Japan Gulch Chloramination System, Sooke Lake Intake Tower screen upgrades, several dam projects, post disaster water supply equipment purchases and a bulk supply billing meter replacements.

A five year capital plan has been presented for information. The total five year (2018-2022) capital plan budget is \$55.372 million, including \$3.222 million in carry forward projects, the largest of which are noted above.

#### Capital and Debt Expenditures

The 2018 capital expenditures will be partially funded through a transfer to the water capital fund in the amount of \$5,301,214, with the balance funded through debt. 2018 debt expenditures for existing and projected new debt servicing are budgeted to be \$10,378,776. Debt servicing expenditures have decreased by \$1,800,825 from 2017, primarily due to the retirement of LA2862-078, originally borrowed in 2002 for \$27 million. The long term debt obligations are summarized on the attached graphs (Attachment 3). A loan authorization was completed in 2014 to allow borrowing to help fund the five year capital plan. It is expected that a new loan authorization process will be undertaken in the Fall of 2018 to allow borrowing in 2019.

#### Water Demand

As reported last year, water demand in the service area has declined for many years recently primarily due to the ongoing residential replacement of low efficiency appliances and higher flow plumbing fixtures with high efficiency and low flow units, as well as decreasing outdoor summer demand due to changes in attitudes and behaviours with respect to water conservation. However, since 2015 actual demand has exceeded budgeted demand, primarily due to increased demand resulting from extended periods of warm and dry weather and growth related demand. Although 2017 demand is projected to be lower than 2016 demand, the year end demand total is projected to be 45,700,000 which is higher than the 2017 budgeted water demand of 45,000,000 cubic metres. The net revenue resulting from this additional demand is proposed to be included in the water capital fund transfer at year end 2017. The recommended 2018 water rate has been calculated using a budget demand of 45,000,000 cubic metres (Page 13 of the budget document).

#### Proposed 2018 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 2018. The proposed 2018 wholesale rate is \$0.6644 per cubic metre (Page 14 of the budget document).

#### Wholesale Water Rate History and Projection

The wholesale water rate history and projection is attached (Attachment 4). The rates may be adjusted in the future to reflect actual revenue and expenditure circumstances and water demand volumes.

#### Recommendations from the Regional Water Supply Commission Budget Subcommittee

1. Approve the 2018 Capital Budget and the Five Year Capital Plan;
2. Approve the 2018 Operating Budget;
3. Approve the 2018 wholesale water rate of \$0.6644 per cubic metre; and
4. Approve the 2018 agricultural water rate of \$0.2105 per cubic metre.

### **RECOMMENDATIONS**

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

1. Approve the 2018 Capital Budget and the Five Year Capital Plan;
2. Approve the 2018 Operating Budget;
3. Approve the 2018 wholesale water rate of \$0.6644 per cubic metre; and
4. Approve the 2018 agricultural water rate of \$0.2105 per cubic metre.

Submitted by:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Ben Semmens, BCom, CPA, CMA, Senior Financial Advisor, Financial Services
Concurrence:	Nelson Chan, MBA, CPA, CMA, Chief Financial Officer, Financial Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

TR:mm

Attachments: 4

# **CAPITAL REGIONAL DISTRICT**

## **2018 BUDGET**

### **REGIONAL WATER SUPPLY**

#### **COMMISSION REVIEW**

OCTOBER 2017

**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 Service - water supply, treatment and transmission system for the Greater Victoria region, providing wholesale water to those 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:	\$12,500,000	2014 - (MFA Bylaw No. 3902 - Regional Water Supply Water Works Facilities)
Borrowed:	\$4,500,000	
Remaining:	\$8,000,000	

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)

**FUNDING:**

Costs are recovered through the sale of bulk water.

### Rate Base for 2018 Revenue Year

	<u>2016</u> <u>Application</u>	<u>2017</u> <u>Application</u>	<u>End of 2017</u> <u>for '18 Applic.</u>	<u>Change</u>	
<b>Wholesale System</b>					
Physical Plant	\$ 232,576,192	\$ 227,628,493	\$ 226,180,350	\$ (1,448,143)	Note 1
Construction Work In Progress	2,048,288	8,694,962	9,205,888	510,927	Note 1
Cash Working Capital	1,555,422	1,605,523	1,782,018	176,495	
Inventory	<u>225,000</u>	<u>225,000</u>	<u>225,000</u>	<u>-</u>	
Total Wholesale Rate Base	\$ 236,404,902	\$ 238,153,977	<b>\$ 237,393,256</b>	\$ (760,722)	

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

**Schedule of Change in Physical Plant & Work In Progress**

**Wholesale**

<b>Projected Asset Additions</b>	<u>Projected Assets Capitalized</u>
Japan Gulch Treatment Plant Upgrades	1,543,160
Sooke Dam Safety Improvements	506,589
Leech River Restoration	285,584
Sooke Reservoir Powerline Upgrade & Repair	274,486
Waugh Creek Bank Stabilization	250,000
SRR Disinfection Facility Component Upgrades	225,000
Rithet Road West Rehabilitation	200,000
Watershed Security Enhancements	185,000
Goldstream Gate/Gatehouse Upgrade	168,451
Watershed Bridge & Culvert Replacement	165,000
Major Main Repairs	138,882
SCADA Equipment Replacement Program	125,000
Deception & Saddle Dam Review	85,097
Computer upgrades	85,000
Goldstream Dams Safety Review & Imprvmts	80,147
Transmission system component upgrades	80,000
Fish Stream Assessments	75,000
Water Supply Eqpt Upgrades	67,000
Drinking Water Safety Plan	65,166
Building Upgrades- 479 Island Hwy	62,100
Water Audit - Supply Condition Assessment	60,038
Main Lab Equipment Replacement	59,797
Goldstream Boathouse Shelter	59,205
Chlorine Analysers-Transmission Sys	59,177
Revenue Meter Replacement	50,000
Sooke Intake Tower Power Conversion	50,000
Other Projects (22 minor projects under \$50k)	523,394
Total projected assets capitalized	<u>\$ 5,528,273</u>
Less: current years depreciation	(6,608,787)
Less: change in prior year forecast addition estimates, & disposals.	(367,629)
Change in Physical Plant	<u><u>\$ (1,448,143)</u></u>

**Projected Construction Work In Progress (CWIP)**

Japan Gulch Treatment Plant Upgrades	7,582,616
Leech River Restoration	210,000
Sooke Intake Screens Condition Assessment/Replacement	207,872
Butchart Dam #5 Remediation	198,550
Lubbe Dam No. 4 Remediation	188,509
Sooke Dam Safety Improvements	150,000
Bulk Supply Meter Replacement Program	150,000
Goldstream Dams Safety Review	70,000
Asset Reconciliation/Transfer agreement study	60,193
Watershed Security Enhancements	15,000
Other Projects (17 minor projects under \$50k)	373,148
Projected CWIP	<u>\$ 9,205,888</u>
Less Prior years projected CWIP	(8,694,961)
Change in CWIP	<u><u>\$ 510,927</u></u>

### Revenue Requirements for 2018 Year

	2016 Application	2017 Application	2018 Application	Change
<b>Wholesale</b>				
Operations & maintenance	\$ 12,616,202	\$ 13,022,577	\$ 14,454,147	\$ 1,431,570
Depreciation	6,625,500	6,708,904	6,835,513	\$ 126,609
Return on rate base	<u>8,849,600</u>	<u>9,538,600</u>	<u>9,190,400</u>	<u>\$ (348,200)</u> Note 1
Subtotal of above	\$ 28,091,302	\$ 29,270,081	\$ 30,480,060	\$ 1,209,979
Non-rate revenue including unaccounted water revenue	<u>(582,600)</u>	<u>(582,600)</u>	<u>(582,060)</u>	<u>\$ 540</u>
Total wholesale	\$ 27,508,702	\$ 28,687,481	\$ 29,898,000	\$ 1,210,519

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

**Schedule of Ongoing and One-Time Budget Items for 2018-2019**  
**For details refer to Attachment A**

	<u>2018</u>		<u>2019</u>	
	<u>Ongoing</u>	<u>One-Time</u>	<u>Ongoing</u>	<u>One-Time</u>
<b>Watershed Protection</b>				
Watershed Technologist 1/Information Officer 1 for Resource Planning (1 FTE)	\$ 80,052			
Reduction in auxiliary hours previously needed in Resource Planning	\$ (38,000)			
Leech WSA Operating Funds	\$ 50,000			
Funding for Water NSERC Network for Forested Drinking Water Source Protection Technologies		25,000		25,000
<b>Total</b>	<b>\$ 92,052</b>	<b>\$ 25,000</b>	<b>\$ -</b>	<b>\$ 25,000</b>
<b>Water Management</b>				
Senior Manager - Infrastructure Operations allocation	\$ 35,400			
Additional auxiliary and student staff	\$ 7,640			
Additional costs of maintaining the upgraded Japan Gulch Treatment Plant	\$ 225,360			
Operations optimization review		\$ 50,000		
<b>Total</b>	<b>\$ 268,400</b>	<b>\$ 50,000</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Water Quality</b>				
Regulatory water sampling services	\$ 105,000			
<b>Total</b>	<b>\$ 105,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Cross Connection</b>				
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Demand Management Programs</b>				
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Infrastructure Engineering</b>				
Dam Safety obligations	\$ 60,000			
<b>Total</b>	<b>\$ 60,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Fleet Operation &amp; Maintenance</b>				
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Customer Technical Services &amp; GM Support</b>				
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total</b>	<b>\$ 525,452</b>	<b>\$ 75,000</b>	<b>\$ -</b>	<b>\$ 25,000</b>
<b>Total Ongoing and One-Time Budget Items</b>	<b>\$ 600,452</b>		<b>\$ 25,000</b>	

<b>WATERSHED PROTECTION DIVISION</b>
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**ATTACHMENT A DETAILS**

<b>Ongoing Budget Item:</b>	
<b>YR 2018</b> 1 FTE Watershed Technologist 1/Information Officer 1 in Resource Planning The Watershed Protection Division requires a new FTE to provide capacity for resource planning projects, hydrology field monitoring and public tour expansion.	\$ 80,052
Existing auxiliary labour in Resource Planning can be removed from the operating budget with approval of a full FTE.	\$ (38,000)
<b>Total</b>	<b>\$ 42,052</b>

<b>Ongoing Budget Item:</b>	
<b>YR 2018</b> Leech WSA operating funds The addition of the Leech WSA almost doubled the size of the GVWSA to manage and maintain. The capital project for restoration of the Leech has provided funds for the restoration of the area, upgrade, replacement and deactivation of roads and crossing structures, but does not provide the funds for ongoing management and maintenance. An increase in operating funds to maintain and manage the Leech WSA was planned and approved in 2009 but not implemented. At that time an operating uplift of \$242,000 per year was planned for the period of 2016 - 2020. This request is for an ongoing uplift of \$50,000 to conduct regular maintenance activities.	\$ 50,000
<b>Total</b>	<b>\$ 50,000</b>

<b>WATERSHED PROTECTION DIVISION</b>
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<b>One-Time Budget Item:</b>	
<b>YR 2018 - 2022</b> Annual funding of \$25,000 for five years to support the "forWater: NSERC Network for Forested Drinking Water Technologies" which leverages \$1 million in NSERC funding annually for five years for research projects, student training, and research extension on forest protection and management and the impact on source water treatability.	\$ 25,000
<b>Total</b>	<b>\$ 25,000</b>

<b>WATER MANAGEMENT DIVISION</b>
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**ATTACHMENT A DETAILS**

<b>Ongoing Budget Item:</b>	
<p><b>YR 2018</b> 0.5 FTE Senior Manager - Infrastructure Operations Allocation</p> <p>Currently, the Senior Manager - Infrastructure Operations (1 FTE) position is shared between the Water and the Wastewater operations. Due to the increase in staffing and infrastructure associated with the CAWTP, there is a need for a new Senior Manager position. Going forward, a full 1.0 FTE will be applied to Water Infrastructure Operations, and 1.0 FTE to Wastewater Infrastructure Operations. This results in a 0.5 FTE increase to the Water Management budget. The Regional Water Supply service receives its share of the costs via an increase in the Water Operations labour charge.</p>	\$ 35,400
<b>Total</b>	<b>\$ 35,400</b>

<b>Ongoing Budget Item:</b>	
<p><b>YR 2018</b> Auxiliary and Student Staff Allocation</p> <p>Additional resources are requested for the Water Management division to address seasonal workload stresses. This includes such seasonal work as valve exercising, reservoir cleaning due to water quality demand, service leaks and water main flushing. The Regional Water Supply service receives its share of the costs via an increase in the Water Operations labour charge.</p>	\$ 7,640
<b>Total</b>	<b>\$ 7,640</b>

<b>WATER MANAGEMENT DIVISION</b>
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<b>Ongoing Budget Item:</b>	
<p><b>YR 2018</b> Additional costs of maintaining the upgraded Japan Gulch Treatment Plant</p> <p>The upgraded Japan Gulch Treatment Plant, and the conversion to liquid chemicals (Ammonia and chlorine) results in the following budget increases:</p> <ul style="list-style-type: none"> <li>- Chlorine &amp; Ammonia chemicals</li> <li>- Fuel and mechanical support for new UV Genset</li> <li>- Electricity for climate control for chemical buildings</li> <li>- Monochloramine reagents</li> <li>- liquid chemical tank pumpout</li> <li>- Monochloramine analysers</li> <li>- other miscellaneous costs</li> </ul>	<p>\$ 100,000</p> <p>\$ 39,280</p> <p>\$ 30,000</p> <p>\$ 17,280</p> <p>\$ 18,000</p> <p>\$ 13,400</p> <p>\$ 7,400</p> <p>.</p>
<b>Total</b>	<b>\$ 225,360</b>

<b>One-Time Budget Item:</b>	
<p><b>YR 2018</b> Operations optimization review</p> <p>Proposal to retain a consultant for \$100,000, to provide a complete assessment of the optimal level of annual preventative and corrective maintenance hours required for the assets in the RWS &amp; JDFWD water services. The assessment would also consider the existing labour hours available to do this work by existing FTEs, and the expected number of labour hours required for CAPEX projects. This will lead to more informed decisions regarding labour requirements for the expanding assets and aging infrastructure in these water services. The review is proposed to be funded 50% by RWS; 50% by JDF Water Distribution (split is based on the budgeted Water Management program costs in both services).</p>	<p>\$ 50,000</p> <p>.</p>
<b>Total</b>	<b>\$ 50,000</b>

<b>WATER QUALITY PROGRAMS</b>
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**ATTACHMENT A DETAILS**

<b>Ongoing Budget Item:</b>	
<b>YR 2018</b> Regulatory water sampling services  Adding sampling, analysis and reporting support to the Water Quality programs, to address provincial regulatory requirements on behalf of the municipal water purveyors. These water sampling costs comprise of salary and benefit costs for a new Water Sampling Technician, as well as supplies and equipment costs.	\$ 105,000  .
<b>Total</b>	<b>\$ 105,000</b>

**INFRASTRUCTURE ENGINEERING DIVISION****ATTACHMENT A DETAILS**

<b>Ongoing Budget Item:</b>	
<b>YR 2018</b> Dam Safety obligations Increased provincial regulatory requirements require increased scrutiny and reporting to meet those requirements. This includes additional efforts that are not capital in nature.	\$ 60,000
<b>Total</b>	<b>\$ 60,000</b>

**2018 Demand Estimate****Wholesale Demand**

<u>Years</u>	<u>Actual Demand cu.metre</u>	<u>Budgeted Demand cu.metre</u>
2012	45,845,000	47,721,000
2013	43,507,000	46,528,000
2014	44,716,000	45,067,000
2015	44,480,000	43,588,000
2016	47,602,000	43,152,000
2017	45,700,000*	45,000,000

**2018 Demand Estimate****45,000,000**

\* *Projected consumption for 2017*

### Summary of Wholesale Water Rates

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Change</u>
<b>Wholesale water rate</b>						
Unit cost per cu.m.	\$0.5994	\$0.6254	\$0.6375	\$0.6375	\$0.6644	\$0.0269

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

Average Annual Consumption : 235.0 cubic metres

<u>Charge for Twelve Months Consumption</u>		<u>Annual Charge</u>	<u>2018 Annual Change \$</u>
Average Consumption	2017	\$ 149.81	
	2018	\$ 156.13	\$ 6.32
Half Average Consumption	2017	\$ 74.91	
	2018	\$ 78.07	\$ 3.16
Twice Average Consumption	2017	\$ 299.63	
	2018	\$ 312.27	\$ 12.64

**Schedule A**  
**Asset Useful Life Assignments - PSAB**

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

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

**2.670 Regional Water Supply  
Asset/ Reserve Schedule  
2018 - 2022 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. The total historical value as of Dec 31, 2016 for all assets was \$355.4M.

**Equipment Replacement Reserve Schedule**

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

Fund: 1022 Fund Center: 101454	Estimate	Budget				
	2017	2018	2019	2020	2021	2022
<b>Beginning Balance</b>	2,611,657	2,199,151	1,732,824	1,830,325	1,797,907	1,926,040
<b>Equipment purchases (Based on Capital Plan)</b>	(870,000)	(865,000)	(208,000)	(367,300)	(185,000)	-
<b>Transfer from Operating Budget</b>	288,994	268,923	274,301	279,787	285,383	291,090
<b>Proceeds on disposals</b>	130,500	129,750	31,200	55,095	27,750	-
<b>Interest Income*</b>	38,000					
<b>Ending Balance \$</b>	<b>2,199,151</b>	<b>1,732,824</b>	<b>1,830,325</b>	<b>1,797,907</b>	<b>1,926,040</b>	<b>2,217,130</b>

General Comments:

Reserve Fund is used for the purpose of replacing fleet vehicles including heavy equipment & its mobile components as stipulated in the capital plan. Proceeds from disposals of vehicles and depreciation allowance of the vehicles is transferred to Reserves. 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.

**CAPITAL REGIONAL DISTRICT**  
**FIVE YEAR CAPITAL EXPENDITURE PLAN SUMMARY - 2018 to 2022**

**SCHEDULE B**

<b>Service No. 2.670</b> <b>Regional Water Supply</b>	<b>Carry Forward from 2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>TOTAL</b>
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**EXPENDITURE**

Buildings	\$34,000	\$194,000	\$25,000	\$325,000	\$1,725,000	\$2,025,000	\$4,294,000
Equipment	\$227,500	\$1,872,500	\$1,747,500	\$1,217,500	\$1,417,500	\$677,500	\$6,932,500
Land	\$0	\$185,000	\$275,000	\$200,000	\$150,000	\$150,000	\$960,000
Engineered Structures	\$2,960,063	\$10,430,063	\$11,215,000	\$7,185,000	\$6,650,000	\$6,080,000	\$41,560,063
Vehicles	\$0	\$865,000	\$208,000	\$367,000	\$185,000	\$0	\$1,625,000
	<b>\$3,221,563</b>	<b>\$13,546,563</b>	<b>\$13,470,500</b>	<b>\$9,294,500</b>	<b>\$10,127,500</b>	<b>\$8,932,500</b>	<b>\$55,371,563</b>

**SOURCE OF FUNDS**

Capital Funds on Hand	\$3,221,563	\$4,911,563	\$4,962,500	\$4,927,500	\$5,042,500	\$5,032,500	\$24,876,563
Debenture Debt ( New Debt Only)	\$0	\$7,700,000	\$8,300,000	\$4,000,000	\$4,900,000	\$3,900,000	\$28,800,000
Equipment Replacement Fund	\$0	\$935,000	\$208,000	\$367,000	\$185,000	\$0	\$1,695,000
Grants (Federal, Provincial)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Donations / Third Party Funding	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Reserve Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Short Term Loans	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>\$3,221,563</b>	<b>\$13,546,563</b>	<b>\$13,470,500</b>	<b>\$9,294,500</b>	<b>\$10,127,500</b>	<b>\$8,932,500</b>	<b>\$55,371,563</b>

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022

Service #: 2.670  
Service Name: Regional Water Supply

**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 (cont)**  
Res = Reserve Fund  
STLoan = Short Term Loans  
WU - Water Utility

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

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 2017	2018	2019	2020	2021	2022	5 - Year Total
<b>WATERSHED PROTECTION</b>													
<b>Planning</b>													
17-01	New	Historic Powerhouse - Options Assessment & Plan	The Goldstream Powerhouse is an historic building near the Great Trail in the GVWSA. Options and a plan to conserve the building are to be developed.	\$30,000	B	WU	\$0	\$10,000	\$0	\$0	\$0	\$0	\$10,000
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.	\$190,000	E	WU	\$0	\$80,000	\$0	\$100,000	\$0	\$0	\$180,000
17-03	New	23S Quarry Rehabilitation	Rehabilitation of a quarry in the Sooke WSA that has evidence of natural acid rock drainage.	\$230,000	S	WU	\$0	\$100,000	\$0	\$100,000	\$0	\$0	\$200,000
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.	\$225,000	S	WU	\$0	\$75,000	\$75,000	\$0	\$0	\$0	\$150,000
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).	\$270,000	S	WU	\$0	\$40,000	\$100,000	\$0	\$100,000	\$0	\$240,000
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	S	WU	\$0	\$0	\$150,000	\$0	\$0	\$0	\$150,000
18-02	New	Leech and Cragg River Slope and Channel Stability Assessment	Assessment of the existing signs of terrain instability in the lower reaches of the Leech River and Cragg Creek to better understand the risks to water quality and implications to water supply intake infrastructure.	\$100,000	S	WU	\$0	\$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	\$35,000	\$50,000	\$50,000	\$0	\$0	\$135,000
19-07	Study	Leech WSA Lakes Assessment	An assessment of the physical, chemical and biological parameters of the Leech WSA source waterbodies.	\$75,000	L	WU	\$0	\$0	\$75,000	\$0	\$0	\$0	\$75,000
<b>Capital</b>													
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	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$750,000
15-01	Renewal	Replace Autogates at Goldstream Entrance	The security gates are past end of life and are to be replaced with more effective security infrastructure.	\$75,000	S	WU	\$67,663	\$67,663	\$0	\$0	\$0	\$0	\$67,663
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.	\$95,000	S	WU	\$92,400	\$92,400	\$0	\$0	\$0	\$0	\$92,400
16-04	New	Establish Long Term Forest Monitoring Plots	Installation of 2 additional long term forest monitoring plots.	\$75,000	S	WU	\$15,000	\$30,000	\$15,000	\$0	\$0	\$0	\$45,000
16-06	Renewal	Watershed Protection Operations Centre (office, training and public tours classroom, sheltered large parts storage)	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.	\$4,050,000	B	WU	\$34,000	\$34,000	\$0	\$300,000	\$1,700,000	\$2,000,000	\$4,034,000
<b>Sub-Total Page 1</b>				\$11,456,000			\$209,063	\$814,063	\$615,000	\$700,000	\$1,950,000	\$2,150,000	\$6,229,063

**CAPITAL REGIONAL DISTRICT CAPITAL PLAN**

**CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022**

**Service #:** 2.670  
**Service Name:** Regional Water Supply

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**Funding Source Codes (cont)**  
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**Asset Class**  
L - Land  
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V - Vehicles  
E - Equipment

**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 2017	2018	2019	2020	2021	2022	5 - Year Total
17-07	Renewal	Weeks Main Road Upgrade North of Weeks Lake	Road upgrade, re-routing and a new bridge installation to bring the road to regulatory standard.	\$550,000	S	WU	\$0	\$300,000	\$250,000	\$0	\$0	\$0	\$550,000
18-03	Renewal	Leech River/Weeks Main Bridge Replacement	Replacement of an undersized culvert with a concrete bridge to handle peak flows and provide safe fish passage.	\$300,000	S	WU	\$0	\$0	\$300,000	\$0	\$0	\$0	\$300,000
18-04	New	Wildfire Detection Infrared Camera for Survey Mtn	Installation of a high sensitivity infrared camera to detect wildfire on Survey Mountain.	\$30,000	E	WU	\$0	\$30,000	\$0	\$0	\$0	\$0	\$30,000
18-05	New	GWWSA Fuel Management Corridors	Implementation of forest fuel management corridors in strategic locations for wildfire management in the GWWSA.	\$300,000	S	WU	\$0	\$150,000	\$150,000	\$0	\$0	\$0	\$300,000
18-06	Replacement	GWWSA Sanitation Facilities upgrade	Construction of permanent sanitation facilities in key locations using the existing "dry" system.	\$35,000	B	WU	\$0	\$35,000	\$0	\$0	\$0	\$0	\$35,000
18-11	Renewal	Large Equipment Storage at FOC	Addition of equipment bays to the existing FOC Warehouse to store valuable large equipment that is currently subject to the elements.	\$85,000	S	WU	\$0	\$85,000	\$0	\$0	\$0	\$0	\$85,000
18-12	New	Fibre Optic Network Link	To support video surveillance at Goldstream entrance, a fibre optic cable is required to link the FOC Annex to the FOC Main Office.	\$25,000	S	WU	\$0	\$25,000	\$0	\$0	\$0	\$0	\$25,000
18-13	New	Sand Storage Bin	Construction of a sand storage bin to support sanding operations during winter months in the Goldstream entrance and Japan Gulch Treatment Facility areas.	\$20,000	S	WU	\$0	\$20,000	\$0	\$0	\$0	\$0	\$20,000
19-01	Renewal	Goldstream River Bridge Replacement	Replacement of the existing undersized bridge with a longer and higher concrete structure.	\$300,000	S	WU	\$0	\$300,000	\$0	\$0	\$0	\$0	\$300,000
19-02	New	Whiskey Creek Bridge Replacement	Replacement of the existing undersized bridge with a longer and higher concrete structure.	\$300,000	S	WU	\$0	\$0	\$0	\$0	\$0	\$300,000	\$300,000
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	\$0	\$450,000	\$0	\$0	\$450,000
21-01	New	31N Bridge to Replace Undersized Culvert	Replacement of the existing undersized and failing culvert with a bridge structure.	\$200,000	S	WU	\$0	\$0	\$0	\$0	\$200,000	\$0	\$200,000
													\$0
<b>Sub-Total Watershed Protection</b>				\$14,051,000			\$209,063	\$1,759,063	\$1,315,000	\$1,150,000	\$2,150,000	\$2,450,000	\$8,824,063

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022

Service #: 2.670  
Service Name: Regional Water Supply

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FIVE YEAR FINANCIAL PLAN

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<b>INFRASTRUCTURE ENGINEERING AND OPERATIONS</b>													
<b>Planning</b>													
16-07	New	Asset Reconciliation / Transfer Agreements	Identify, confirm and reconcile supply system assets ownership.	\$100,000	S	WU	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$50,000
16-08	New	Hydraulic Model, Audit, and Supply Forecasting	Conduct a hydraulic model and forecast water supply as well as audit bulk metering.	\$200,000	S	WU	\$100,000	\$100,000	\$0	\$0	\$0	\$0	\$100,000
16-09	New	Water Quality/Filtration Study	Conduct siting study for anticipated filtration treatment.	\$100,000	S	WU	\$80,000	\$0	\$80,000	\$0	\$0	\$0	\$80,000
16-10	New	Post Disaster Emergency Water Supply	Identify and procure emergency systems for post disaster preparedness.	\$1,100,000	S	WU	\$150,000	\$150,000	\$200,000	\$200,000	\$200,000	\$200,000	\$950,000
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	\$150,000	\$300,000	\$0	\$0	\$0	\$0	\$300,000
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	\$0	\$200,000	\$200,000	\$0	\$0	\$0	\$400,000
17-16	Renewal	Goldstream/Waugh Creek Cross Channel Decommissioning	Removal of sluice gates and other abandoned infrastructure.	\$40,000	S	WU	\$10,000	\$40,000	\$0	\$0	\$0	\$0	\$40,000
18-14	Renewal	Site Assessment/Feasibility of Overflow Channel	Humpback overflow channel condition assessment, and feasibility of enclosing channel.	\$50,000	S	WU	\$0	\$50,000	\$0	\$0	\$0	\$0	\$50,000
19-04	New	Seismic Assessment of Critical Facilities	Identified as a priority from Strategic Plan, a seismic assessment of critical facilities will be undertaken.	\$150,000	S	WU	\$0	\$75,000	\$75,000	\$0	\$0	\$0	\$150,000
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	\$0	\$0	\$200,000	\$0	\$0	\$200,000
<b>Capital</b>													
14-02	Replacement	Upgrade JG Chloramination System	Construction of new chloramination system.	\$9,000,000	S	WU	\$660,000	\$1,160,000	\$0	\$0	\$0	\$0	\$1,160,000
15-02	Replacement	Mt. Tolmie Reservoir Control Valve Assess & Replacement	Assess current Mt Tolmie Reservoir control logic and replace end of life control valves.	\$75,000	E	WU	\$20,000	\$45,000	\$0	\$0	\$0	\$0	\$45,000
15-03	Renewal	Sooke Intake Screens Condition Assessment & Replacement	Renewal of the aging Sooke Intake Tower and equipment to maintain water supply.	\$1,860,000	S	WU	\$550,000	\$1,650,000	\$0	\$0	\$0	\$0	\$1,650,000
17-23	New	Japan Gulch Emergency Notification System	Design and implementation of an emergency notification system.	\$180,000	S	WU	\$0	\$120,000	\$0	\$0	\$0	\$0	\$120,000
17-24	Replacement	SCADA Equipment Replacement Program	Planned replacement of SCADA equipment as recommended from the SCADA Master Plan.	\$825,000	E	WU	\$0	\$0	\$0	\$200,000	\$500,000	\$0	\$700,000
18-07	New	JGTP - UV Reactor Lines 9 & 10 Installation	Installation of additional UV reactors.	\$200,000	E	WU	\$0	\$0	\$200,000	\$0	\$0	\$0	\$200,000
18-08	Replacement	Bulk Supply Meter Replacement Program	Planned replacement of aging bulk meter replacement based upon a condition assessment and water audit.	\$2,000,000	E	WU	\$50,000	\$450,000	\$400,000	\$400,000	\$400,000	\$200,000	\$1,850,000
<b>Sub-Total Page 3</b>				\$16,830,000			\$1,820,000	\$4,390,000	\$1,155,000	\$1,000,000	\$1,100,000	\$400,000	\$8,045,000

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022

Service #: 2.670  
Service Name: Regional Water Supply

**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.  
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**Funding Source Codes (cont)**  
 Res = Reserve Fund  
 STLoan = Short Term Loans  
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**Asset Class**  
 L - Land  
 S - Engineering Structure  
 B - Buildings  
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 E - Equipment

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 2017	2018	2019	2020	2021	2022	5 - Year Total
18-15	Renewal	Cathodic Protection Program	Study deficiencies in the current material protection and implement recommendations.	\$250,000	S	WU	\$0	\$50,000	\$100,000	\$100,000	\$0	\$0	\$250,000
18-16	Renewal	Main No. 2 Remove Abdn Valves - Admirals/Craigflower	Remove 3 abandoned valves on Main No. 2.	\$250,000	S	WU	\$0	\$250,000	\$0	\$0	\$0	\$0	\$250,000
18-17	New	Sooke Spillway Gate Power	Addition of standby power to for the Sooke Spillway gates.	\$150,000	E	WU	\$0	\$150,000	\$0	\$0	\$0	\$0	\$150,000
18-18	Replacement	Main No.3 Segment Replacement	Replacement of segments of Main No. 3 based upon previous studies.	\$19,800,000	S	WU	\$0	\$200,000	\$4,900,000	\$4,900,000	\$4,900,000	\$4,900,000	\$19,800,000
18-29	Renewal	Stelly's PS Assessment	Assess the requirement for the Stelly's pump station and implement electrical requirement reductions.	\$175,000	S	WU	\$0	\$75,000	\$100,000	\$0	\$0	\$0	\$175,000
19-05	Renewal	Kapoor Tunnel Repairs	Repair defects in the Kapoor tunnel.	\$250,000	S	WU	\$0	\$0	\$250,000	\$0	\$0	\$0	\$250,000
<b>Sub-Total Infrastructure Engineering and Operations</b>				\$37,705,000			\$1,820,000	\$5,115,000	\$6,505,000	\$6,000,000	\$6,000,000	\$5,300,000	\$28,920,000
<b>DAM SAFETY PROGRAM</b>													
14-04	Replacement	Sooke Dam Safety Improvements Piezometers Replacement	Complete instrumentation plan to monitor the Sooke Dam.	\$100,000	S	WU	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$50,000
16-15	Replacement	Lubbe Dam No. 4 Remediation	Replacement of the Lubbe Dam No. 4.	\$3,085,000	S	WU	\$820,000	\$2,265,000	\$0	\$0	\$0	\$0	\$2,265,000
16-16	Renewal	Goldstream Dams Safety Review & Improvements	Conduct a dam safety review and some improvements for the Goldstream dams.	\$705,000	S	WU	\$0	\$200,000	\$150,000	\$100,000	\$75,000	\$0	\$525,000
16-17	Renewal	Butchart Dam No. 5 Remediation	Replacement of Butchart Dam No. 5	\$3,550,000	S	WU	\$75,000	\$325,000	\$3,000,000	\$0	\$0	\$0	\$3,325,000
17-25	Renewal	Sooke Dam Safety Review and Implications	Conduct a dam safety review and some improvements for the Sooke Dam.	\$1,350,000	S	WU	\$0	\$310,000	\$320,000	\$120,000	\$300,000	\$0	\$1,050,000
18-19	New	Sooke Lake Dam - Instrumentation System Improvements	Complete instrumentation system improvements for the Sooke Dam.	\$1,250,000	S	WU	\$0	\$525,000	\$275,000	\$200,000	\$100,000	\$150,000	\$1,250,000
18-20	New	Sooke Lake Dam - Breach Risk Reduction Measures	Implement measures to reduce Sooke Lake Dam breach.	\$400,000	S	WU	\$0	\$200,000	\$200,000	\$0	\$0	\$0	\$400,000
18-21	New	Independent Dam Safety Assessment	Have an independent panel assess recent dam safety reviews and provide recommendations for improvements.	\$120,000	S	WU	\$0	\$120,000	\$0	\$0	\$0	\$0	\$120,000
18-22	New	Dam Emergency Plans, Operations Maintenance & Surveillance Manual Updates	Update operation & maintenance manuals and dam emergency plans.	\$120,000	S	WU	\$0	\$120,000	\$0	\$0	\$0	\$0	\$120,000
21-02	New	Charters Dam - Dam Safety Review & Improvements	Conduct a dam safety review and some improvements for the Charters Dam.	\$200,000	S	WU	\$0	\$0	\$0	\$100,000	\$100,000	\$0	\$200,000
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	\$0	\$0	\$100,000	\$100,000	\$100,000	\$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	\$0	\$0	\$100,000	\$100,000	\$0	\$200,000
<b>Sub-Total Dam Safety Program</b>				\$11,380,000			\$945,000	\$4,115,000	\$3,945,000	\$720,000	\$775,000	\$250,000	\$9,805,000

**CAPITAL REGIONAL DISTRICT CAPITAL PLAN**

**CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022**

Service #: 2.670  
Service Name: Regional Water Supply

**Proj. No.**  
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**Funding Source Codes (cont)**  
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STLoan = Short Term Loans  
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**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 2017	2018	2019	2020	2021	2022	5 - Year Total
<b>WATER QUALITY PROGRAM</b>													
16-19	Replacement	WQ - Main Lab Equipment Replacement	Replacemnt of aging equipment.	\$60,000	E	WU	\$60,000	\$60,000	\$0	\$0	\$0	\$0	\$60,000
16-20	New	Chlorine Analyzers - Transmission System	Installation of new chlorine analyzers.	\$120,000	E	WU	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$60,000
16-21	New	Drinking Water Safety Plans	A study to identify and assess potential risks associated with the supply system.	\$70,000	S	WU	\$40,000	\$30,000	\$0	\$0	\$0	\$0	\$30,000
16-22	Renewal	WQIS Database - Functional Enhancements	Upgrade of the water quality database with additional functionality.	\$75,000	S	WU	\$0	\$15,000	\$15,000	\$15,000	\$15,000	\$0	\$60,000
16-23	New	Cross Connection Control New Software Request	New software to automate cross connection control auditing.	\$130,000	E	WU	\$40,000	\$40,000	\$0	\$0	\$0	\$0	\$40,000
16-24	New	pH Corrosion Study	Study potential risks and solutions to corrosion due to low pH.	\$50,000	S	WU	\$50,000	\$0	\$50,000	\$0	\$0	\$0	\$50,000
18-09	Renewal	WQ - Main Lab Renovation and Consolidation	Renovation of the water quality lab to consolidate services.	\$75,000	B	WU	\$0	\$75,000	\$0	\$0	\$0	\$0	\$75,000
18-23	New	Goldstream Background Water Quality Study - Backup Water Supply Assessment	Study water quality impacts of using backup Goldstream system for water supply.	\$15,000	S	WU	\$0	\$15,000	\$0	\$0	\$0	\$0	\$15,000
18-24	New	Capital Projects Assessment - Impacts on Water Quality	Assess the impacts of upcoming capital projects on system water supply.	\$5,000	s	WU	\$0	\$5,000	\$0	\$0	\$0	\$0	\$5,000
18-25	New	Juan de Fuca Distribution System - Lead Investigation	Conduct monitoring program to determine risks associated with lead-contaminated infrastructure.	\$5,000	S	WU	\$0	\$5,000	\$0	\$0	\$0	\$0	\$5,000
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	\$0	\$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	\$0	\$15,000	\$0	\$0	\$0	\$0	\$15,000
19-03	New	WQ - Nutrient Analyzer	Purchase of a nutrient analyzer for the water quality lab.	\$60,000	E	WU	\$0	\$0	\$60,000	\$0	\$0	\$0	\$60,000
19-06	New	Backflow Feasibility Study (Main No. 1 & 3)	Study possible cross contamination associated with flow direction of Mains No. 1 and Mains No. 2.	\$20,000	S	WU	\$0	\$20,000	\$0	\$0	\$0	\$0	\$20,000
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	\$0	\$0	\$40,000	\$0	\$0	\$40,000
<b>Sub-Total Water Quality Program</b>				\$815,000			\$190,000	\$385,000	\$155,000	\$55,000	\$15,000	\$0	\$610,000

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022

Service #: 2.670  
Service Name: Regional Water Supply

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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 2017	2018	2019	2020	2021	2022	5 - Year Total
<b>ANNUAL PROVISIONAL CAPITAL ITEMS</b>													
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	\$250,000	\$200,000	\$155,000	\$155,000	\$155,000	\$915,000
17-29	Replacement	Water Supply Area Equipment Replacement	Hydrometeorological, fireweather, wildfire suppression and water quality equipment replacement.	\$500,000	E	WU	\$0	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
17-30	Replacement	Kapoor Tunnel and Major Transmission Main Repairs	Kapoor Tunnel inspection and 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.	\$370,000	S	WU	\$0	\$80,000	\$80,000	\$80,000	\$80,000	\$50,000	\$370,000
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.	\$130,000	E	WU	\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$10,000	\$130,000
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
<b>Sub-Total for Annual Provisional Capital Items</b>				\$4,045,000			\$0	\$890,000	\$840,000	\$795,000	\$795,000	\$725,000	\$4,045,000
<b>CUSTOMER AND TECHNICAL SERVICES</b>													
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.	\$2,295,000	V	ERF	\$0	\$865,000	\$208,000	\$367,000	\$185,000	\$0	\$1,625,000
18-28	New	EV Charging Stations	Advancing Strategic Board Priorities, IWS will install an EV charging station at the RWS facility	\$30,000	E	ERF	\$0	\$30,000	\$0	\$0	\$0	\$0	\$30,000
18-30	New	New Samplers' Vehicle	An additional sampler vehicle is required to facilitate an additional sampler for the regional/municipal systems	\$40,000	E	ERF	\$0	\$40,000	\$0	\$0	\$0	\$0	\$40,000
<b>Sub-Total for Customer and Technical Services</b>				\$2,365,000			\$0	\$935,000	\$208,000	\$367,000	\$185,000	\$0	\$1,695,000
<b>GRAND TOTAL</b>				<b>\$70,361,000</b>			<b>\$3,164,063</b>	<b>\$13,199,063</b>	<b>\$12,968,000</b>	<b>\$9,087,000</b>	<b>\$9,920,000</b>	<b>\$8,725,000</b>	<b>\$53,899,063</b>

**CAPITAL REGIONAL DISTRICT CAPITAL PLAN**

**CAPITAL BUDGET FORM  
2018 & Forecast 2019 to 2022**

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

**Proj. No.**  
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**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 2017	2018	2019	2020	2021	2022	5 - Year Total
<b>SYSTEM REPLACEMENT AND UPGRADES THAT BENEFIT REGIONAL WATER SUPPLY AND JUAN DE FUCA DISTRIBUTION</b>													
16-01	Renewal	Upgrades to Buildings at 479 Island Highway	Maintenance and changes to buildings and office layouts.	\$335,000	B		\$0	\$80,000	\$50,000	\$50,000	\$50,000	\$50,000	\$280,000
17-01	Renewal	Voice Radio Upgrade	Replacement of end of life voice radio system repeaters, office, vehicle and handheld radios.	\$640,000	E		\$15,000	\$35,000	\$590,000	\$0	\$0	\$0	\$625,000
18-01	Replacement	Crane Replacement	Replacement of the overhead crane in the Fleetshop	\$75,000	E		\$0	\$75,000	\$0	\$0	\$0	\$0	\$75,000
18-02	New	Operational Support Program	Develop a program to aid in tracking and delivering engineering support to Operations for issues fanging from small equipment failures to emergency support.	\$40,000	S		\$0	\$40,000	\$0	\$0	\$0	\$0	\$40,000
<b>Sub-Total System Replacement and Upgrades That Benefit Regional Water Supply and Juan de Fuca Distribution</b>				\$1,090,000			\$15,000	\$230,000	\$640,000	\$50,000	\$50,000	\$50,000	\$1,020,000
<b>ANNUAL PROVISIONAL CAPITAL ITEMS</b>													
16-04	New	Implementation of a Fleet Management Solution (software)	Development and implementation of a fleet management system.	\$150,000	E		\$100,000	\$100,000	\$0	\$0	\$0	\$0	\$100,000
17-02	Replacement	SCADA Hardware Upgrading and Replacement	Upgrade and replacement of SCADA equipment as required.	\$210,000	E		\$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		\$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		\$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		\$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		\$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		\$0	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
<b>Sub-Total for Annual Provisional Capital Items</b>				\$ 2,575,000			\$ 100,000	\$ 465,000	\$ 365,000	\$ 365,000	\$ 365,000	\$ 365,000	\$1,925,000
<b>GRAND TOTAL</b>				<b>\$3,665,000</b>			<b>\$115,000</b>	<b>\$695,000</b>	<b>\$1,005,000</b>	<b>\$415,000</b>	<b>\$415,000</b>	<b>\$415,000</b>	<b>\$2,945,000</b>

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

<b>Proj. No.</b> 17-01	<b>Capital Project Title</b> Historic Powerhouse - Options Assessm	<b>Capital Project Description</b> The Goldstream Powerhouse is an historic building near the Great Trail in the GVWSA. Options and a plan to conserve the building are to be developed.
<b>Asset Class</b> Buildings	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>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: <a href="http://en.wikipedia.org/wiki/Lubbe_Powerhouse">http://en.wikipedia.org/wiki/Lubbe_Powerhouse</a> 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 is being conducted in 2017. <b>Funds in 2018 are to prepare options and funding applications for repairs, potential conservation works and public interpretation.</b></i>		
<b>Proj. No.</b> 17-02	<b>Capital Project Title</b> Leech River HydroMet System	<b>Capital Project Description</b> Installation of a network of hydrometeorological stations to collect water quantity and quality information for the Leech WSA.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>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 in <b>2018 (\$80,000) and 2010 (\$100,000).</b> <b>Funding requests have increased due to the difficult terrain and access to reach monitoring locations.</b></i>		
<b>Proj. No.</b> 17-03	<b>Capital Project Title</b> 23S Quarry Rehabilitation	<b>Capital Project Description</b> Rehabilitation of a quarry in the Sooke WSA that has evidence of natural acid rock drainage.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>The 23S rock quarry was greatly expanded during the Sooke Reservoir Expansion Project. Although this quarry has been used as a source of rock for the upgrade of roads and drainage structures, the most recently exposed rock face has exhibited some evidence of acid rock drainage. While drainage from this rock face has been diverted away from Sooke Lake Reservoir and there is no risk to water quality, this issue has triggered the end of the operational life of the quarry. A quarry reclamation plan (\$30,000) was developed in 2017. <b>The first phase of reclamation (2018) is to sort and move a number of existing piles of rock to create a berm to stabilize an over-steepened rock face in the quarry, salvage useable rock, and improve the areas identified as an emergency helicopter staging area and for storage area of emergency dam repair materials. Water quality sampling will be undertaken during and after the work. Safety fencing will also be installed above the steep slopes created by the quarrying. The second reclamation phase planned for 2020 (\$100,000) will be to complete the capping of reclaimed areas to meet provincial requirements.</b></i>		

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

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

<b>Proj. No.</b> 17-06	<b>Capital Project Title</b> Weeks Lake Area Environmental Asses:	<b>Capital Project Description</b> Assessment and remediation of the Weeks Lake gravel pit (lead from firearms) and Weeks Lake (metals and hydrocarbons from dumping).
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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 (2017) and for lead and other metals and hydrocarbons in Weeks Lake sediments from vehicle dumping and firearms use (2018) is planned. Expected remediation is planned for subsequent years (2019 and 2021). **If non-contaminated gravel can be sourced from the gravel pit, it will be used to assist in nearby Leech restoration projects in the fall of 2019.***

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

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

<b>Proj. No.</b> 18-02	<b>Capital Project Title</b> Leech and Cragg River Slope and Chan	<b>Capital Project Description</b> Assessment of the existing signs of terrain instability in the lower reaches of the Leech River and Cragg Creek to better understand the risks to water quality and implications to water supply intake infrastructure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The lower reaches of the Leech River and Cragg Creek flow through canyons of steep and unstable glacial moraine. Landslides have occurred in the past and ongoing slides, erosion and stream channel instability cause sediment and turbidity issues in these watercourses during precipitation events. Although water from the Leech River may not be needed for water supply for some time, it is important to understand issues relating to slope and channel stability to determine how these factors will affect future engineering works and how they could be addressed and managed prior to the Leech River being required for water supply.*

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

**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 in order to develop a site specific conservation plan.*

<b>Proj. No.</b> 09-01	<b>Capital Project Title</b> Leech River Watershed Restoration	<b>Capital Project Description</b> A 17 year project to restore the Leech WSA lands for water supply.
<b>Asset Class</b> Land	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *A 17 year project to 2025 to restore the Leech WSA lands for water supply. Priorities for this 5 year plan include: assessments and upgrade/deactivation of roads in the West Leech area and Lazar Main area. Given the cost associated with some priority road projects in the Leech, they are listed as separate capital line items and **funding in this line item is reduced.***

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<b>Proj. No.</b> 19-07	<b>Capital Project Title</b> Leech WSA Lakes Assessment	<b>Capital Project Description</b> An assessment of the physical, chemical and biological parameters of the Leech WSA source waterbodies.
<b>Asset Class</b> Land	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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)*

<b>Proj. No.</b> 15-01	<b>Capital Project Title</b> Replace Autogates at Goldstream Entrance	<b>Capital Project Description</b> The security gates are past end of life and are to be replaced with more effective security infrastructure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The security gates 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 the Japan Gulch Treatment Facility upgrades and the replacement of the Gatehouse building.*

<b>Proj. No.</b> 16-01	<b>Capital Project Title</b> Replace Gatehouse at Goldstream Entrance	<b>Capital Project Description</b> The security/first aid gatehouse is past end of life and is to be replaced with more effective security infrastructure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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<b>Proj. No.</b> 16-04	<b>Capital Project Title</b> Establish Long Term Forest Monitoring F	<b>Capital Project Description</b> Installation of 2 additional long term forest monitoring plots.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>The 2012 Strategic Plan for the Greater Victoria Water Supply System identified Adaptation to Climate Change as a strategic priority for the system. A key goal associated with this priority is improved understanding of the potential effects of climate change on forest ecosystems in the GVWSA. To achieve this goal, the plan set out the action of developing collaborative partnerships with other agencies to enhance research and monitoring of the forests in the GVWSA and setting up a network of long-term forest monitoring plots. Several existing federal and provincial forest monitoring plots have been incorporated into this network in collaboration with these agencies and a university, but additional monitoring plots are required to represent the forest ecosystems in the GVWSA and provide enough plots to detect trends. Given the intensity of initial data collection, one plot per year is being established.</i>		

<b>Proj. No.</b> 16-06	<b>Capital Project Title</b> Watershed Protection Operations Centre	<b>Capital Project Description</b> Renewal of Water Quality field office, lab and equipment and supplies storage and Watershed Protection office, training,
<b>Asset Class</b> Buildings	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>Watershed Protection staff (25 FTE and 8 seasonal auxiliaries) are currently located in 2 trailers and a house at the Goldstream Gate entrance to the water supply area, and in office space at the Integrated Water Services office in View Royal. The trailers were considered temporary office space since their implementation over 10 years ago. The trailers are old, prone to leaks and therefore 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. <b>Funds in 2020 will be used to develop a design with building and site construction in 2021 and 2022.</b></i>		

<b>Proj. No.</b> 17-07	<b>Capital Project Title</b> Weeks Main Road Upgrade North of We	<b>Capital Project Description</b> Road upgrade, re-routing and a new bridge installation to bring the road to regulatory standard.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>This 500 m section at the north end of Weeks Main is <b>prone to flooding in two areas</b> and the streams are fish bearing. In one section the road surface needs to be elevated and a fish friendly drainage structure installed. <b>In the other section the road will be re-routed to avoid an alluvial fan with multiple braided streams and a new bridge installed to cross the fish bearing stream further upslope.</b></i>		

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<b>Proj. No.</b> 18-03	<b>Capital Project Title</b> Leech River/Weeks Main Bridge Replac	<b>Capital Project Description</b> Replacement of an undersized culvert with a concrete bridge to handle peak flows and provide safe fish passage.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *A large culvert near the headwaters of the Leech River is undersized and during peak flows has caused the river to overflow the roadway. The culvert needs to be replaced with a concrete bridge to restore proper water flow in the fish stream and provide safe road passage. **The project is moved forward to 2019.***

<b>Proj. No.</b> 18-04	<b>Capital Project Title</b> Wildfire Detection Infrared Camera for S	<b>Capital Project Description</b> Installation of a high sensitivity infrared camera to detect wildfire on Survey Mountain.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The 2012 Strategic Plan recommended continued upgrade of wildfire management capabilities. A high quality infrared camera specific to wildfire management can be used to detect wildfires kilometres away. An installation on Survey Mountain will provide 24/7 surveillance for a large area of the GVWSA.*

<b>Proj. No.</b> 18-05	<b>Capital Project Title</b> GVWSA Fuel Management Corridors	<b>Capital Project Description</b> Implementation of forest fuel management corridors in strategic locations for wildfire management in the GVWSA.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *Wildfire is the greatest threat to water quality in the GVWSA. In 2014 - 2017 CRD staff will have 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.*

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<b>Proj. No.</b> 18-06	<b>Capital Project Title</b> GVWSA Sanitation Facilities upgrade	<b>Capital Project Description</b> Construction of permanent sanitation facilities in key locations using the existing "dry" system.
<b>Asset Class</b> Buildings	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** Sanitation facilities are required in the GVWSA to ensure water quality protection. It is becoming difficult to procure portable units that function with the existing removable-bag system. Four to six permanent sanitation facilities will be constructed in key areas providing more of the existing portable units for worksites.

<b>Proj. No.</b> 18-11	<b>Capital Project Title</b> Large Equipment Storage at FOC	<b>Capital Project Description</b> Addition of equipment bays to the existing FOC Warehouse to store valuable large equipment that is currently subject to the elements.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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 (Project 16-06).

<b>Proj. No.</b> 18-12	<b>Capital Project Title</b> Fibre Optic Network Link	<b>Capital Project Description</b> To support video surveillance at Goldstream entrance, a fibre optic cable is required to link the FOC Annex to the FOC Main Office.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** Video surveillance cameras were installed at the FOC Annex building as part of the development of a video surveillance system to increase detection and enforcement associated with GVWSA trespass. The cameras are not currently physically connected to the CRD network but instead use a SHAW VPN connection back to CRD servers at Fisgard. System performance and reliability will be increased by installing a fibre optic link to connect the FOC Annex building to the CRD network.

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<b>Proj. No.</b> 18-13	<b>Capital Project Title</b> Sand Storage Bin	<b>Capital Project Description</b> Construction of a sand storage bin to support sanding operations during winter months in the Goldstream entrance and Japan Gulch Treatment Facility areas.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *Internal capacity to maintain the critical access routes during snowy periods requires improvement. A new sand storage bin needs to be constructed near the FOC to ensure a reliable source of sand is available when required.*

<b>Proj. No.</b> 19-01	<b>Capital Project Title</b> Goldstream River Bridge Replacement	<b>Capital Project Description</b> Replacement of the existing undersized bridge with a longer and higher concrete structure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The existing bridge over the Goldstream River of the secondary water supply has inadequate free board and poses a risk to water quality and fish habitat. This bridge on Goldstream Main needs to be replaced with a longer concrete structure, with greater clearance from the high water mark. **The project has been moved ahead to 2018 and engineered designs indicate increased funding is required.***

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

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

<b>Proj. No.</b> 21-01	<b>Capital Project Title</b> 31N Bridge to Replace Undersized Culve	<b>Capital Project Description</b> Replacement of the existing undersized and failing culvert with a bridge structure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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

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<b>Proj. No.</b> 16-08	<b>Capital Project Title</b> Hydraulic Model, Audit, and Supply Fore	<b>Capital Project Description</b> Conduct a hydraulic model and forecast water supply as well as audit bulk metering.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *This item is proposed to evolve the existing hydraulic computer model and to conduct an audit of water usage and forecasting. This will guide the planning of future capital works to ensure that the infrastructure is improved in advance of future demands and to assist with pending water service agreements with the wholesale customers.*

<b>Proj. No.</b> 16-09	<b>Capital Project Title</b> Water Quality/Filtration Study	<b>Capital Project Description</b> Conduct siting study for anticipated filtration treatment.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *There is currently no filtration required for the water supply, but in the future it is anticipated that regulations will become stricter and filtration will be required at some point. This capital item is to consider alternative location(s) for filtration when it becomes necessary and treatment technology. This will help with site planning efforts and future capital works.*

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

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

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

<b>Proj. No.</b> 17-16	<b>Capital Project Title</b> Goldstream/Waugh Creek Cross Chann	<b>Capital Project Description</b> Removal of sluice gates and other abandoned infrastructure.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *A series of cross channels was historically used to divert water from the Goldstream system to Jack Lake and Humpback Reservoir via Waugh Creek. This system has not been used for water supply since 1997, and the channels and associated works (sluice gates, etc.) should be decommissioned to avoid possible flooding. This was originally identified as a Watershed Protection project.*

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<b>Proj. No.</b> 18-14	<b>Capital Project Title</b> Site Assessment/Feasibility of Overflow Channel	<b>Capital Project Description</b> Humpback overflow channel condition assessment, and feasibility of enclosing channel.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The Humpback overflow channel is utilized to convey water that has overflowed in safe discharge manner. This structure requires a condition assessment to ensure continues to function as designed. Additionally, a feasibility study of enclosing the channel for safety reasons will be carried out. Funds are required to retain a consultant to conduct a condition assessment of the overflow channel and feasibility study of enclosing the channel.*

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

**Project Rationale** *A Water Supply System Strategic Plan update occurred in 2017. Seismically assessing critical facilities 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. The results of the assessment will inform future investigation and capital improvements if required. Funds are required to retain a consultant to seismically assess critical facilities within the water supply system.*

<b>Proj. No.</b> 20-02	<b>Capital Project Title</b> Supply System Resilience Feasibility Study	<b>Capital Project Description</b> 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
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *A Water Supply System Strategic Plan update occurred in 2017. Ensuring the water supply system is resilient with appropriate system redundancies has been highlighted as a priority to ensure continued water supply in the event of key infrastructure failure. A feasibility study of critical infrastructure will identify and assess to whether plans, procedures and necessary infrastructure are in place in the event key infrastructure fails. The results will inform future investigation and capital improvements if required. Funds are required to retain a consultant to conduct the supply system resilience feasibility study.*

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<b>Proj. No.</b> 14-02	<b>Capital Project Title</b> Upgrade JG Chloramination System	<b>Capital Project Description</b> Construction of new chloramination system.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>In 2012, an engineering study was conducted of the existing Japan Gulch chloramination system which consists of gaseous chlorine and ammonia delivered to the treatment facility. The consultant considered a number of options and recommended replacement of the gaseous systems with liquid delivered to site. A design-build contract was awarded in 2016 with construction starting in 2016 with final acceptance of the work anticipated for in 2018.</i>		

<b>Proj. No.</b> 15-02	<b>Capital Project Title</b> Mt. Tolmie Reservoir Control Valve Asses	<b>Capital Project Description</b> Assess current Mt Tolmie Reservoir control logic and replace end of life control valves.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>The control valve system at the Mount Tolmie reservoir is complex and outdated. This item is to assess and identify alternative control valve options and to inform a future capital budget with replacement cost estimates. Additional funds are required to carry out some valving improvements, such as updating the out of date and non-functioning pneumatic actuated valve.</i>		

<b>Proj. No.</b> 15-03	<b>Capital Project Title</b> Sooke Intake Screens Condition Assess	<b>Capital Project Description</b> Renewal of the aging Sooke Intake Tower and equipment to maintain water supply.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> <i>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.</i>		

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<b>Proj. No.</b> 17-23	<b>Capital Project Title</b> Japan Gulch Emergency Notification Sys	<b>Capital Project Description</b> Design and implementation of an emergency notification system.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 17-24	<b>Capital Project Title</b> SCADA Equipment Replacement Progra	<b>Capital Project Description</b> Planned replacement of SCADA equipment as recommended from the SCADA Master Plan.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 18-07	<b>Capital Project Title</b> JGTP - UV Reactor Lines 9 & 10 Installa	<b>Capital Project Description</b> Installation of additional UV reactors.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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

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

<b>Proj. No.</b> 18-16	<b>Capital Project Title</b> Main No. 2 Remove Abdn Valves - Admi	<b>Capital Project Description</b> Remove 3 abandoned valves on Main No. 2.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *This item is for CRD forces to remove three identified abandoned valves on Main No. 2 in the Admirals/Craigflower Road area. The valves pose a liability as they are old, abandoned and staff have no way of confirming their condition. This work includes confirming valve locations, removing the valves and replacing with blind flanges or caps. Funding is required for staff time to carry out the works.*

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

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

<b>Proj. No.</b> 18-29	<b>Capital Project Title</b> Stelly's PS Assessment	<b>Capital Project Description</b> Assess the requirement for the Stelly's pump station and implement electrical requirement reductions.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The existing Stelly's pump station was constructed in the late 1980's to increase available water pressure and flow to the Saanich Peninsula. After the GVWD became part of the CRD the Stelly's pump station was made redundant through adjustment of operation, and consequently the pumps are not required, but the flow meter is used. The Stelly's pump station had required a 2400V service to power the pumps, this requires considerable operations time to maintain the electrical service when a 120V service is sufficient for the flow meter. Funding is required to remove the 2400V service and install a 120V service.*

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

**Proj. No.** 19-05                      **Capital Project Title** Kapoor Tunnel Repairs                      **Capital Project Description** Repair defects in the Kapoor tunnel.  
**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.*

**Proj. No.** 14-04                      **Capital Project Title** Sooke Dam Safety Improvements Piezo                      **Capital Project Description** Complete instrumentation plan to monitor the Sooke Dam.  
**Asset Class** Engineered Structures                      **Board Priority Area** Other                      **Corporate Priority Area** Drinking Water

**Project Rationale** *Develop an instrumentation system plan and conceptual design for new set of "vibrating-wire" piezometers at Sooke Lake Dam to replace the 15 pneumatic piezometers (installed during the dam raise in 2002) that have come to the end of useable life and are no longer performing as designed. The 2016 Dam Safety Review Audit identified the inoperable piezometers as a deficiency and recommended replacement of piezometers and improvements to surveillance capability. 2018 work will focus on completing instrumentation system planning with consultant. In future years, this project will be included with "Sooke Lake Dam – Surveillance Improvements"*

**Proj. No.** 16-15                      **Capital Project Title** Lubbe Dam No. 4 Remediation                      **Capital Project Description** Replacement of the Lubbe Dam No. 4.  
**Asset Class** Engineered Structures                      **Board Priority Area** Other                      **Corporate Priority Area** Drinking Water

**Project Rationale** *The Lubbe Dam #4 was determined to be eroding internally because of leakage through the dam and through a consultant's study it was concluded that the dam was in need of replacement. The preliminary design was completed in 2014 and it is proposed to complete the final design and granular material production in 2016/2017, with the new dam construction project scheduled for 2017/2018. Based upon preliminary design, additional funds are required to complete construction in 2018.*

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

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

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

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

<b>Proj. No.</b> 18-19	<b>Capital Project Title</b> Sooke Lake Dam - Instrumentation System	<b>Capital Project Description</b> Complete instrumentation system improvements for the Sooke Dam.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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 phases 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

<b>Proj. No.</b> 18-20	<b>Capital Project Title</b> Sooke Lake Dam - Breach Risk Reduction	<b>Capital Project Description</b> Implement measures to reduce Sooke Lake Dam breach.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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

<b>Proj. No.</b> 18-21	<b>Capital Project Title</b> Independent Dam Safety Assessment	<b>Capital Project Description</b> Have an independent panel assess recent dam safety reviews and provide recommendations for improvements.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *A dam safety expert panel will be hired to conduct an independent review and provide recommendations regarding outcomes and proposed work from recent dam safety studies, including the 2016 Sooke Lake Dam, Saddle & Deception Dams Probabilistic Seismic Hazard Assessment and the 2016 Sooke Lake Dam - Dam Safety Review Audit. The panel will also review the status of CRD's dam safety management system and provide recommendations for any improvements.*

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

**Proj. No.** 18-22      **Capital Project Title** Dam Emergency Plans, Operations Mair      **Capital Project Description** Update operation & maintenance manuals and dam emergency plans.

**Asset Class** Engineered Structures      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *The current dam emergency plans for Sooke Lake Watershed Dams and Goldstream Watershed Dams need to be updated to meet the current Canadian Dam Association Guidelines and provincial updated template. This is a requirement under the B.C. Dam Safety Regulation and has been recommended by dam safety engineering professionals in the latest Dam Safety Reviews. The work will include the updates to the existing Operations, Maintenance and Surveillance Manuals which is also a recommendation from the most recent Dam Safety Reviews.*

**Proj. No.** 21-02      **Capital Project Title** Charters Dam - Dam Safety Review & In      **Capital Project Description** Conduct a dam safety review and some improvements for the Charters Dam.

**Asset Class** Engineered Structures      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *Charters Dam has a consequence classification of "high" and a dam safety review is required to be completed every ten years under the current B.C. Dam Safety Regulation. The last dam safety review was completed in 2011. The dam safety review will include 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.** 21-03      **Capital Project Title** Deception Dam - Dam Safety Review &      **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 anticipated to be an "audit-style" assessment of the physical condition of the dam, operations, maintenance, surveillance, identification of dam safety deficiencies and recommendations for dam safety improvements. Project includes budget for subsequent year to complete recommended dam safety improvements.*

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

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

<b>Proj. No.</b> 16-19	<b>Capital Project Title</b> WQ - Main Lab Equipment Replacement	<b>Capital Project Description</b> Replacement of aging equipment.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *There are several key pieces of equipment (distilled water system, autoclave, pH analyzer, incubator) that are beyond repair and reliability and need to be replaced. Additional funds are required to replace equipment past their useful service life.*

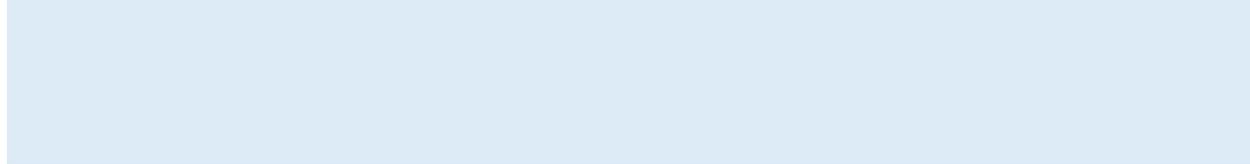
<b>Proj. No.</b> 16-20	<b>Capital Project Title</b> Chlorine Analyzers - Transmission System	<b>Capital Project Description</b> Installation of new chlorine analyzers.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The analyzers (4) will be located at strategic positions within the distribution system to ensure consistent delivery of chlorine residual concentrations by optimizing treatment plant processes through feedback with better, real-time field data.*

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

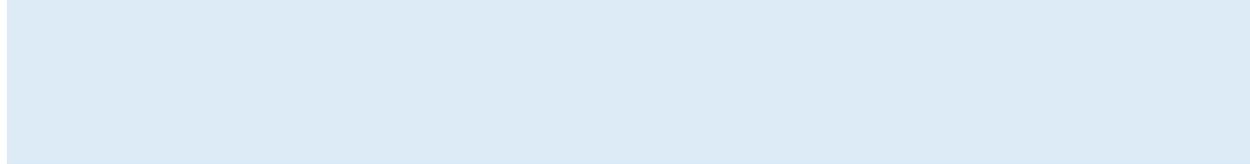
<b>Proj. No.</b> 16-21	<b>Capital Project Title</b> Drinking Water Safety Plans	<b>Capital Project Description</b> A study to identify and assess potential risks associated with the supply system.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *As part of the strategic plan process, this study will identify all potential risks and issues associated with the overall system related to drinking water protection.*



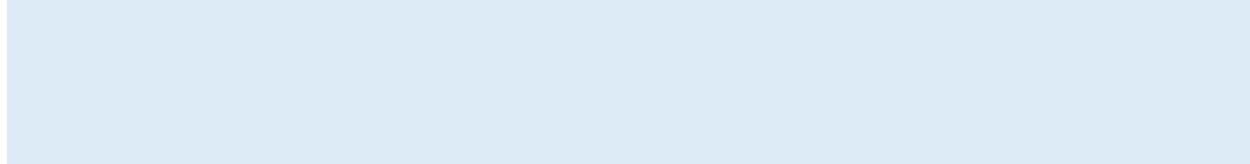
<b>Proj. No.</b> 16-22	<b>Capital Project Title</b> WQIS Database - Functional Enhancem	<b>Capital Project Description</b> Upgrade of the water quality database with additional functionality.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The main database for water quality and results will require several small upgrades, including GIS compatibility to allow visual representation of data.*



<b>Proj. No.</b> 16-23	<b>Capital Project Title</b> Cross Connection Control New Software	<b>Capital Project Description</b> New software to automate cross connection control auditing.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The electronic cross connection control audit form needs to be linked to the existing CRIMS software and synchronized with new software over time.*



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

<b>Proj. No.</b> 16-24	<b>Capital Project Title</b> pH Corrosion Study	<b>Capital Project Description</b> Study potential risks and solutions to corrosion due to low pH.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 18-09	<b>Capital Project Title</b> WQ - Main Lab Renovation and Consolidation	<b>Capital Project Description</b> Renovation of the water quality lab to consolidate services.
<b>Asset Class</b> Buildings	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 18-23	<b>Capital Project Title</b> Goldstream Background Water Quality Study	<b>Capital Project Description</b> Study water quality impacts of using backup Goldstream system for water supply.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *This item is to assess available data and develop a monitoring program to evaluate the water quality associated with the Goldstream Reservoir system. A full assessment is required beyond the monitoring done 2 weeks prior to the Kapoor Tunnel shutdown to evaluate water quality of the system for emergency backup throughout the year.*

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

**Proj. No.** 18-24      **Capital Project Title** Capital Projects Assessment - Impacts c      **Capital Project Description** Assess the impacts of upcoming capital projects on system water supply.

**Asset Class** Engineered Structures      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *This item is to evaluate the implications for water quality as a result of major capital upgrades of the Butchart and Lubbe dams on the Goldstream Reservoir (pre and post-project monitoring). Funding is required to carry out water quality monitoring and analyze the data.*

**Proj. No.** 18-25      **Capital Project Title** Juan de Fuca Distribution System - Leac      **Capital Project Description** Conduct monitoring program to determine risks associated with lead-contaminated infrastructure.

**Asset Class** Engineered Structures      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *This item is to undertake a monitoring program within the Juan de Fuca distribution system to determine any risks associated with lead-contaminated infrastructure. Funding is required for staff time to carry out the program.*

**Proj. No.** 18-26      **Capital Project Title** Supply Management (Sooke Res) Mode      **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.** 19-03      **Capital Project Title** WQ - Nutrient Analyzer      **Capital Project Description** Purchase of a nutrient analyzer for the water quality lab.

**Asset Class** Equipment      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *The contract to have nutrients analyzed by external labs will be replaced by in-house capacity through the purchase of the analyzer and internal training.*

**Proj. No.** 19-06      **Capital Project Title** Backflow Feasibility Study (Main No. 1 &      **Capital Project Description** Study possible cross contamination associated with flow direction of Mains No. 1 and Mains No. 2.

**Asset Class** Engineered Structures      **Board Priority Area** Other      **Corporate Priority Area** Drinking Water

**Project Rationale** *This item is to undertake an assessment of risks associated with cross-contamination and flow direction in Mains #1 and #3 and develop a program to inform capital upgrades.*

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

<b>Proj. No.</b> 20-03	<b>Capital Project Title</b> Leech River Watershed - Implications fo	<b>Capital Project Description</b> Develop program to evaluate water quality implications of adding Leech watershed to supply system.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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*

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

<b>Proj. No.</b> 17-28	<b>Capital Project Title</b> Watershed Security Infrastructure Upgra	<b>Capital Project Description</b> New, upgrade and replacement of security infrastructure in the GVWSA.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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 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**

<b>Proj. No.</b> 17-29	<b>Capital Project Title</b> Water Supply Area Equipment Replacen	<b>Capital Project Description</b> Hydrometeorological, fireweather, wildfire suppression and water quality equipment replacement.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 17-30	<b>Capital Project Title</b> Kapoor Tunnel and Major Transmission	<b>Capital Project Description</b> Kapoor Tunnel inspection and emergency repairs to the transmission mains.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 17-31	<b>Capital Project Title</b> Transmission System Components Repl	<b>Capital Project Description</b> Replacement and repair of transmission components.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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

<b>Proj. No.</b> 17-32	<b>Capital Project Title</b> Revenue Meter Replacement	<b>Capital Project Description</b> Replacement of minor equipment associated with revenue meter sites.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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

<b>Proj. No.</b> 17-34	<b>Capital Project Title</b> Supply System Computer Model Update	<b>Capital Project Description</b> Annual update of the regional hydraulic model.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

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

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

<b>Proj. No.</b> 17-35	<b>Capital Project Title</b> Vehicle & Equipment Replacement (Fun	<b>Capital Project Description</b> 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.
<b>Asset Class</b> Vehicles	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 18-28	<b>Capital Project Title</b> EV Charging Stations	<b>Capital Project Description</b> Advancing Strategic Board Priorities, IWS will install an EV charging station at the RWS facility
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *IWS is committed to advancing the Strategic Board Priorities related to Climate Change by greening the fleet. One of the initiatives is the ongoing evaluation of procurement to consider the use of electrical vehicles. At present IWS has one electrical vehicle in the IWS Fleet. In order to support the use of electrical vehicles, IWS installed an electric charging station at 479 Island Hwy. In 2018 the initiative is to install one more station at a RWS facility to support the use of electrical vehicles.*

<b>Proj. No.</b> 18-30	<b>Capital Project Title</b> New Samplers' Vehicle	<b>Capital Project Description</b> An additional sampler vehicle is required to facilitate an additional sampler for the regional/municipal systems
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *Approval was received from the RWSC for Water Quality to move forward with an additional sampler for our regional/municipal distribution systems. That position will require a samplers vehicle, similar to the vehicles used by the two existing samplers.*

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

<b>Proj. No.</b> 16-01	<b>Capital Project Title</b> Upgrades to Buildings at 479 Island Hig	<b>Capital Project Description</b> Maintenance and changes to buildings and office layouts.
<b>Asset Class</b> Buildings	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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)

<b>Proj. No.</b> 17-01	<b>Capital Project Title</b> Voice Radio Upgrade	<b>Capital Project Description</b> Replacement of end of life voice radio system repeaters, office, vehicle and handheld radios.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

<b>Proj. No.</b> 18-01	<b>Capital Project Title</b> Crane Replacement	<b>Capital Project Description</b> Replacement of the overhead crane in the Fleetshop
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water

**Project Rationale** *The overhead crane in the Fleetshop is at the end of life and requires replacement. Funding is required to remove the existing crane and replace with new one.*

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

<b>Proj. No.</b> 18-02	<b>Capital Project Title</b> Operational Support Program	<b>Capital Project Description</b> Develop a program to aid in tracking and delivering engineering support to Operations for issues ranging from small equipment failures to emergency support.
<b>Asset Class</b> Engineered Structures	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> IWS Engineering currently spends a large, unknown amount of time supporting RWS and JdF operations on issues ranging from operational system optimization, small equipment condition assessment to emergency support for water main breaks and other key infrastructure failures. Funding is required to optimize logging and communication processes for when these issues occur, and to predict and allocate appropriate resources for engineering support of operations.		
<b>Proj. No.</b> 16-04	<b>Capital Project Title</b> Implementation of a Fleet Management	<b>Capital Project Description</b> Development and implementation of a fleet management system.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> 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.		
<b>Proj. No.</b> 17-02	<b>Capital Project Title</b> SCADA Hardware Upgrading and Repl	<b>Capital Project Description</b> Upgrade and replacement of SCADA equipment as required.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> 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.		
<b>Proj. No.</b> 17-03	<b>Capital Project Title</b> Office Equipment, Upgrades and Repla	<b>Capital Project Description</b> Upgrade and replacement of office equipment as required.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> Drinking Water
<b>Project Rationale</b> Funds will be used for the replacement and upgrading of office equipment and furniture, as required.		

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

<b>Proj. No.</b> 17-04	<b>Capital Project Title</b> Computer Upgrades	<b>Capital Project Description</b> Annual upgrade and replacement program for computers, copiers, printers, network equipment as required.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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 2017*  
*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*

<b>Proj. No.</b> 17-05	<b>Capital Project Title</b> Development of the Maintenance Mana	<b>Capital Project Description</b> Develop maintenance management system.
<b>Asset Class</b> Equipment	<b>Board Priority Area</b> Other	<b>Corporate Priority Area</b> 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.*

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

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

CAPITAL REGIONAL DISTRICT

Program Group: CRD-Regional Water Supply

**SUMMARY**

	2018 BUDGET REQUEST						FUTURE PROJECTIONS			
	2017 BOARD BUDGET 2	2017 ESTIMATED ACTUAL 3	2018 CORE BUDGET 4	2018 ONGOING 5	2018 ONE-TIME 6	TOTAL (COL 4, 5 & 6) 7	2019 8	2020 9	2021 10	2022 11
<b>GENERAL PROGRAM EXPENDITURES:</b>										
WATERSHED PROTECTION	4,845,723	4,872,578	4,958,177	92,052	25,000	5,075,229	5,176,734	5,280,268	5,385,874	5,493,591
WATER MANAGEMENT	3,521,929	3,872,342	4,078,024	268,400	50,000	4,396,424	4,433,256	4,521,882	4,612,171	4,704,347
WATER QUALITY	1,293,728	1,309,855	1,363,973	105,000	-	1,468,973	1,498,318	1,528,262	1,558,805	1,589,960
CROSS CONNECTION	710,010	714,972	721,163	-	-	721,163	735,586	750,297	622,704	638,010
DEMAND MANAGEMENT	759,120	757,018	774,025	-	-	774,025	789,502	805,290	821,400	837,831
INFRASTRUCTURE ENGINEERING	402,500	423,572	414,510	60,000	-	474,510	484,000	493,680	503,554	513,625
FLEET OPERATION & MAINTENANCE	(288,994)	(114,815)	(268,923)	-	-	(268,923)	(274,301)	(279,787)	(285,383)	(291,089)
CUSTOMER TECHNICAL SERVICES & GM SUPPORT *	578,561	379,331	587,746	-	-	587,746	604,745	616,066	627,607	640,150
<b>TOTAL OPERATING EXPENDITURES</b>	<b>11,822,577</b>	<b>12,214,853</b>	<b>12,628,695</b>	<b>525,452</b>	<b>75,000</b>	<b>13,229,147</b>	<b>13,447,841</b>	<b>13,715,958</b>	<b>13,846,731</b>	<b>14,126,425</b>
<i>Percentage increase over prior year's board budget</i>			6.82%			11.90%	1.65%	1.99%	0.95%	2.02%
<b>AGRICULTURAL WATER RATE FUNDING</b>	<b>1,200,000</b>	<b>1,300,000</b>	<b>1,225,000</b>	<b>-</b>	<b>-</b>	<b>1,225,000</b>	<b>1,250,000</b>	<b>1,275,000</b>	<b>1,300,000</b>	<b>1,326,000</b>
			2.08%			2.08%	2.04%	2.00%	1.96%	2.00%
<b>CAPITAL EXPENDITURES &amp; TRANSFERS</b>										
TRANSFER TO WATER CAPITAL FUND	3,743,388	3,761,154	5,301,214	-	-	5,301,214	5,700,000	6,100,000	6,800,000	7,400,000
TRANSFER TO EQUIPMENT REPLACEMENT FUND	288,994	288,994	268,923	-	-	268,923	274,301	279,787	285,383	291,090
TRANSFER TO DEBT RESERVE FUND	81,250	46,250	116,390	-	-	116,390	132,390	89,390	98,390	88,390
<b>TOTAL CAPITAL EXPENDITURES &amp; TRANSFERS</b>	<b>4,113,632</b>	<b>4,096,398</b>	<b>5,686,527</b>	<b>-</b>	<b>-</b>	<b>5,686,527</b>	<b>6,106,691</b>	<b>6,469,177</b>	<b>7,183,773</b>	<b>7,779,480</b>
<b>DEBT</b>										
DEBT - INTEREST AND PRINCIPAL	12,179,601	12,109,809	10,378,776	-	-	10,378,776	10,759,391	11,461,204	11,898,504	12,364,104
<b>TOTAL DEBT EXPENDITURES</b>	<b>12,179,601</b>	<b>12,109,809</b>	<b>10,378,776</b>	<b>-</b>	<b>-</b>	<b>10,378,776</b>	<b>10,759,391</b>	<b>11,461,204</b>	<b>11,898,504</b>	<b>12,364,104</b>
<b>DEFICIT TRANSFERRED TO FOLLOWING YR</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
TRANSFER TO FOLLOWING YEAR DEFICIT CARRY FORWARD										
<b>TOTAL EXPENDITURES</b>	<b>29,315,810</b>	<b>29,721,060</b>	<b>29,918,998</b>	<b>525,452</b>	<b>75,000</b>	<b>30,519,450</b>	<b>31,563,923</b>	<b>32,921,339</b>	<b>34,229,008</b>	<b>35,596,009</b>
<b>SOURCES OF FUNDING</b>										
REVENUE - SALES	(28,687,500)	(29,130,000)	(29,297,548)	(525,452)	(75,000)	(29,898,000)	(30,942,473)	(32,299,889)	(33,607,558)	(34,974,559)
REVENUE - OTHER	(628,310)	(591,060)	(621,450)	-	-	(621,450)	(621,450)	(621,450)	(621,450)	(621,450)
<b>TOTAL SOURCE OF FUNDING FROM OPERATIONS</b>	<b>(29,315,810)</b>	<b>(29,721,060)</b>	<b>(29,918,998)</b>	<b>(525,452)</b>	<b>(75,000)</b>	<b>(30,519,450)</b>	<b>(31,563,923)</b>	<b>(32,921,339)</b>	<b>(34,229,008)</b>	<b>(35,596,009)</b>
TRANSFER FROM PRIOR YEAR	-	-	-	-	-	-	-	-	-	-
TRANSFER TO FOLLOWING YEAR SURPLUS CARRY FORWARD										
<b>TOTAL SOURCES OF FUNDING</b>	<b>(29,315,810)</b>	<b>(29,721,060)</b>	<b>(29,918,998)</b>	<b>(525,452)</b>	<b>(75,000)</b>	<b>(30,519,450)</b>	<b>(31,563,923)</b>	<b>(32,921,339)</b>	<b>(34,229,008)</b>	<b>(35,596,009)</b>
<i>Percentage increase over prior year's board budget</i>			2.06%			4.11%	3.42%	4.30%	3.97%	3.99%

**REGIONAL WATER SUPPLY COMMISSION  
Agricultural Water Rate Funding Comparisons 2011 - 2016**

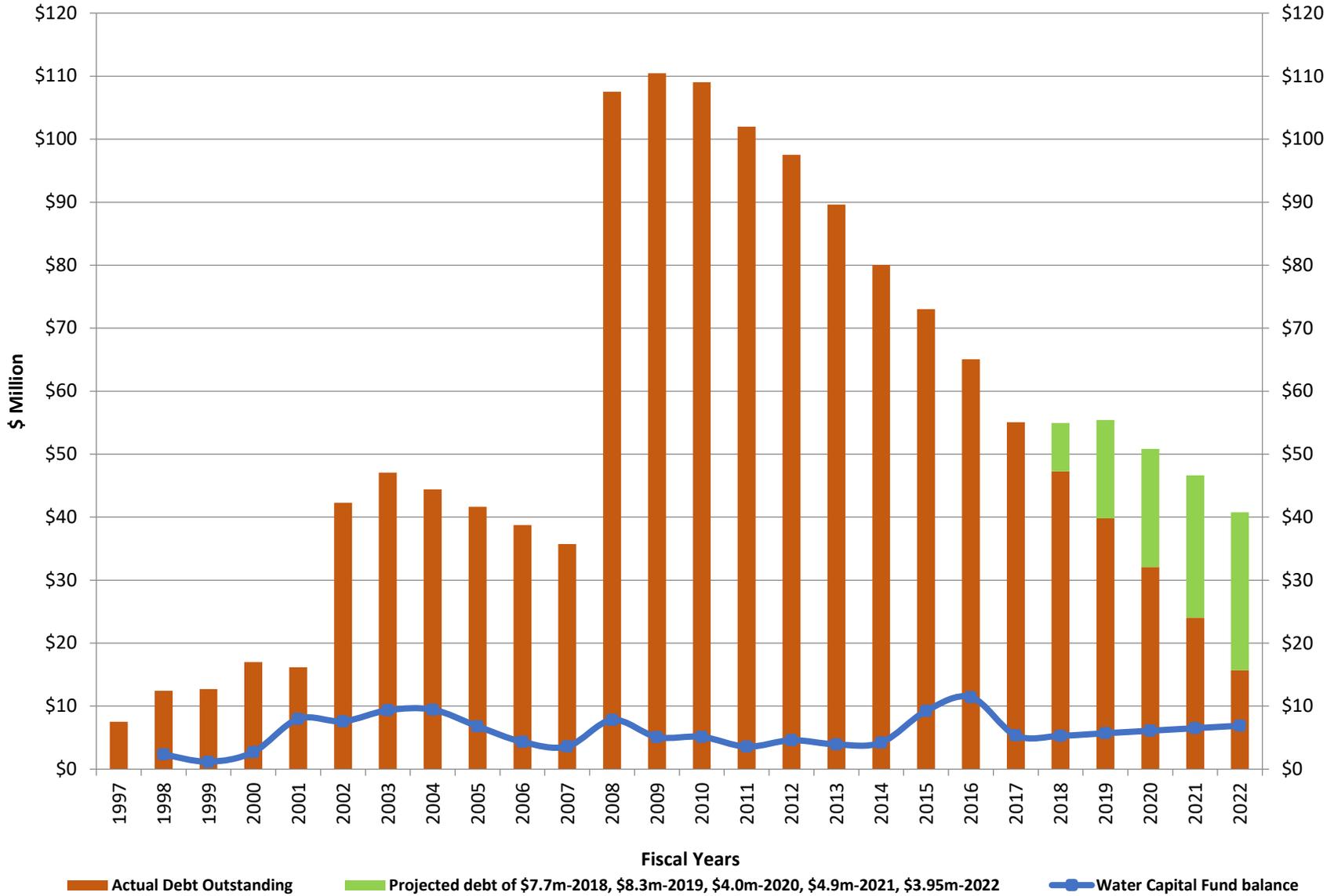
	No. of AR Accounts	No. of AG Accounts	AR Volume m3	AG Volume m3	Avg AR Volume m3 (Vol/Accts)	Avg AG Volume m3	Agri Rate Consumption Costs	Agri Fixed Charge Costs	Total Agri Subsidy Paid out (Cons + Fixed)	Avg Agri Cost \$ (Paid/Accts)	%age of Total Paid out	Rate Differential		
												Municipal Rate m3	Agri Rate m3	Muni-CRD Diff m3
												A	B	A - B
<b>Western Communities &amp; Sooke *</b>														
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
<b>Central Saanich</b>														
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
<b>North Saanich **</b>														
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
<b>Saanich</b>														
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
<b>Totals</b>														
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 does not charge a fixed charge

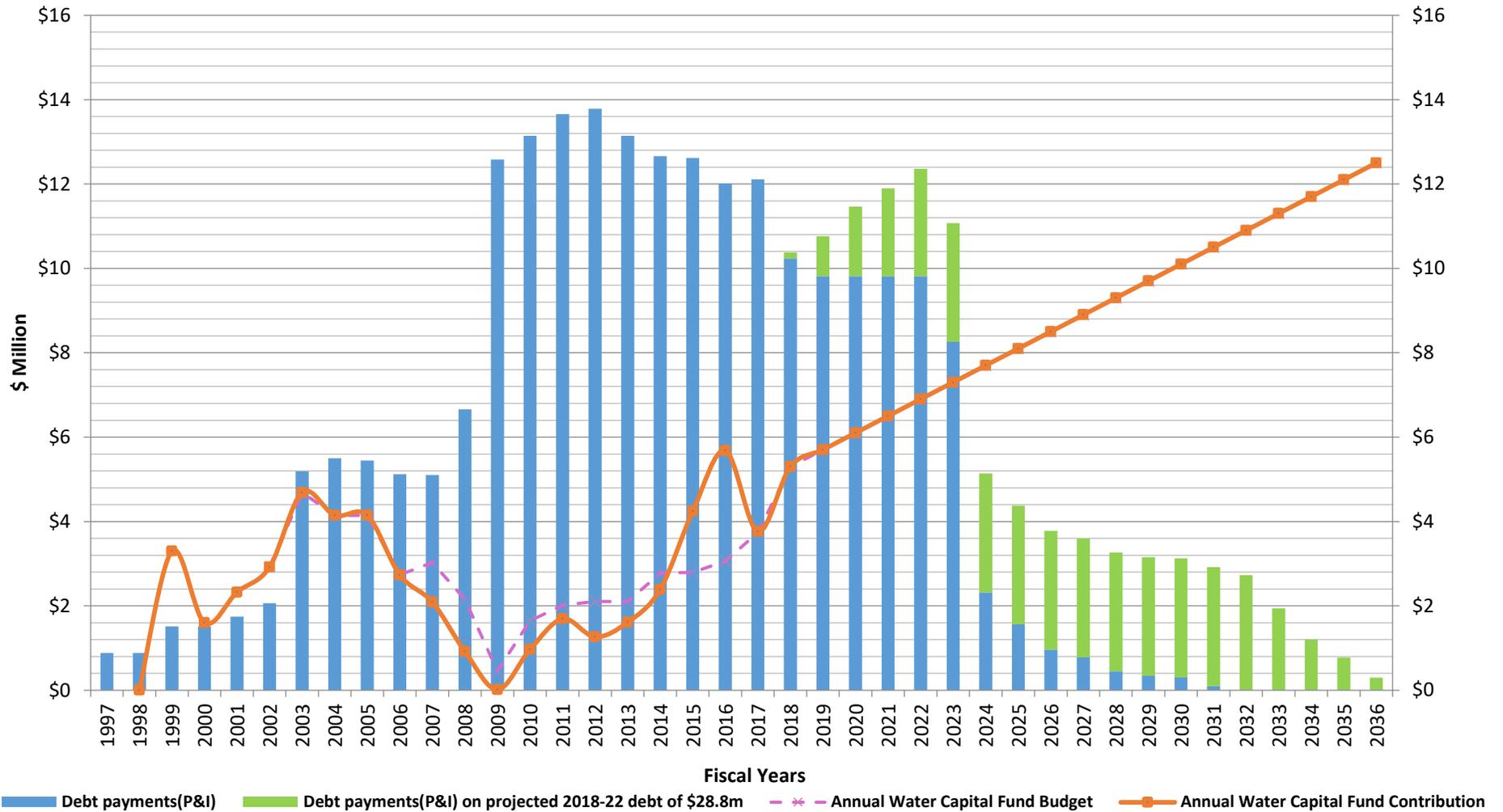
\*\* North Saanich charges the fixed charge on property taxes

\*\*\* 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.

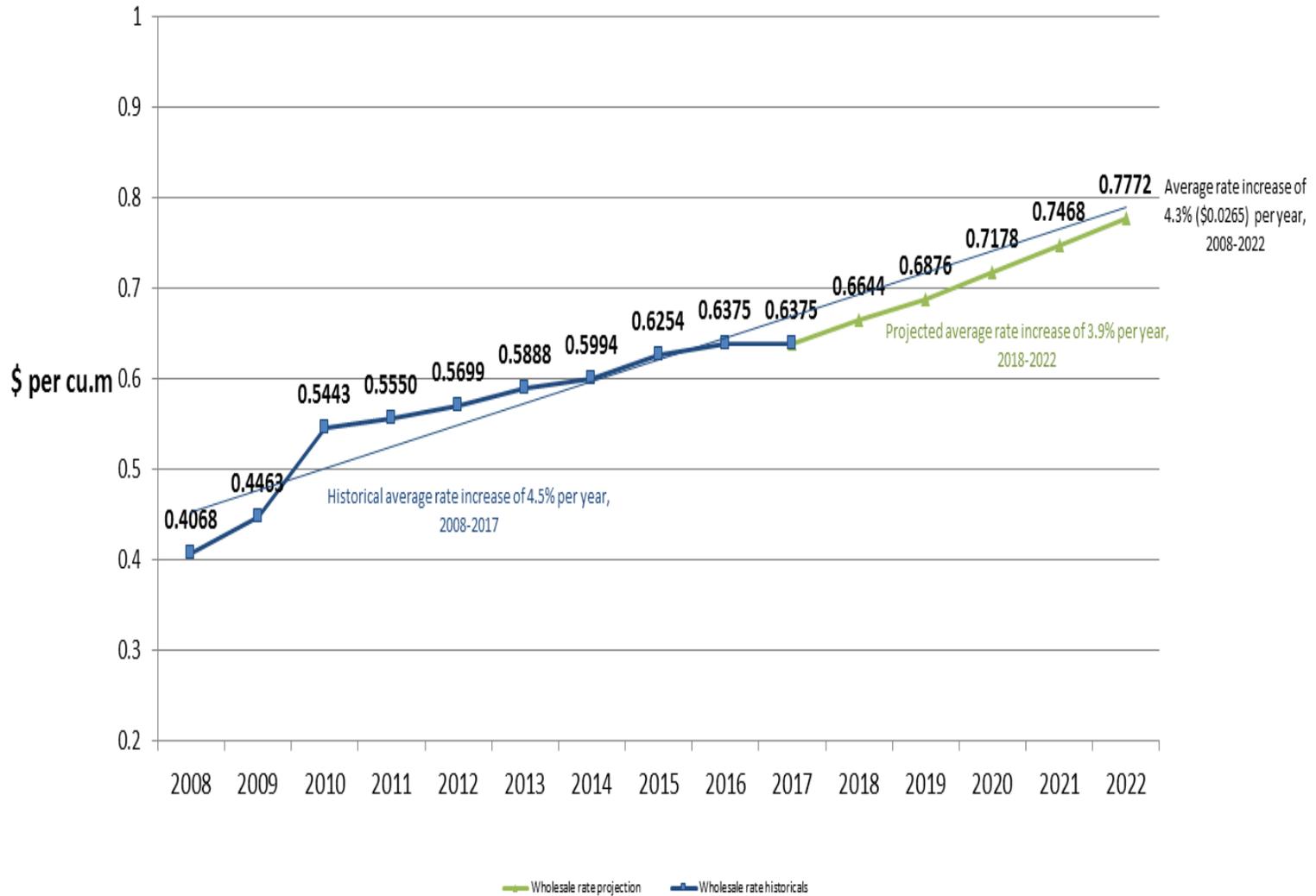
### Regional Water Supply Service (Greater Victoria) Debt Outstanding vs Water Capital Fund Balance



## Regional Water Supply Service (Greater Victoria) Debt Payments (P&I) vs Water Capital Fund Contributions



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



**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, OCTOBER 18, 2017**

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

**ISSUE**

To seek Regional Water Supply Commission approval for placer and mineral tenure holders to access the Leech Water Supply Area under Greater Victoria Water Supply Area Protection Bylaw No. 2804.

**BACKGROUND**

Under Greater Victoria Water Supply Area Protection Bylaw No. 2804, the General Manager will seek approval for access and special use of the Greater Victoria Water Supply Area from the Regional Water Supply Commission. By Policy and Procedure (*Water Supply Area Access and Special Use Request and Approval Policy and Procedure* approved by the Regional Water Supply Commission May 2016), all access requests, except those under prescribed situations, are forwarded to the Regional Water Supply Commission. Mining access and special use is not a prescribed situation under the Procedure and the requests are therefore, presented to the Regional Water Supply Commission for approval.

Mining tenures are issued by the BC Ministry of Energy and Mines under the *Mineral Tenures Act*. The registered holder(s) of the tenure is required to give private land owners a minimum of 8 days' notice prior to entering their lands to access the tenures. 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.

"Special use" is defined in Bylaw No. 2804 as "an activity not included in the operations of the CRD that is carried on in the water supply area by persons who are not employees or contractors of the CRD". Requests for special use must be received in the form of a completed External Applicant Access and Special Use Request application. Staff evaluate the request based on the information provided and submit a report to the Regional Water Supply Commission outlining the request, the implications and a recommendation for the Commission's consideration. The Commission may approve or not approve the request and may set conditions with approval. Upon Commission approval, the General Manager will sign the Access Agreement setting out conditions and authorizing the tenure holder access to the Leech Water Supply Area (WSA).

**2017 Mining Access Application – Chad Bartlett**

Chad Bartlett recently applied for access to conduct mining activities on four placer tenures. Two tenures are located partly within the Leech WSA, and two further tenures are located partly within the Sooke WSA. The two tenures in the Leech WSA which are included in the following table were acquired through sale from the previous holder Robert Johnson on August 31, 2017.

The tenures located partly in the Sooke WSA are not included in the table and are not being considered for access approval at this time. The tenures were newly acquired on August 11, 2017 and lie over the Sooke River south of Sooke Dam and include lands owned by Kapoor Lumber and Timberwest (Attachment 1). Staff are seeking further information from the Ministry of Energy and Mines prior to considering access requests for these two tenures.

The redacted access application is found in Attachment 2. The proposed Access Agreement pending CRD approval is found in Attachment 3.

**Table 1. Leech WSA Mining Tenures for Access Approval**

Tenure Holder	Accompanying Persons	Placer Tenure	Mineral Tenure	Date Tenure Acquired*	Tenure Renewal Date*	Tenure Size* (ha)
Chad Bartlett		1046940		2017-08-31	2017-10-26	21.4
Chad Bartlett		1047461		2017-08-31	2017-10-26	21.4
<b>1 Applicant</b>		<b>2 Placer Tenures</b>	<b>0 Mineral Tenures</b>			<b>42.8</b>

\* Information from the provincial Mineral Tenures Online database

The applicant has \$3 million liability and \$1 million firefighting insurance. The applicant has submitted evidence of vehicle insurance, permission to transit through TimberWest private forest lands, and has signed an Access Agreement that provides the CRD with a liability waiver, and sets out the conditions for access (Attachment 2). No access is permitted during extreme fire danger.

## **ALTERNATIVES**

### Alternative 1

That the Regional Water Supply Commission authorize access and special use to Chad Bartlett to access placer tenures #1046940 and #1047461 in the Leech Water Supply Area from October 18, 2017 to April 30, 2018, with the conditions required in the Access Agreement.

### Alternative 2

That the Regional Water Supply Commission authorize access and special use to Chad Bartlett to access placer tenures #1046940 and #1047461 in the Leech Water Supply Area from October 18, 2017 to April 30, 2018, as described in the access application, with additional conditions.

## **IMPLICATIONS**

Risk/Implication	Access Factors	Mitigation / Impact
Environmental – Fire	<ul style="list-style-type: none"> <li>Varied fire danger throughout the year</li> </ul>	<ul style="list-style-type: none"> <li>Condition: No access during extreme fire danger rating or at other times of special concern</li> <li>Requirement to carry firefighting tools in vehicles during fire season</li> <li>Air and ground patrol monitoring</li> <li>Fire suppression insurance</li> </ul>
Environmental – Contamination Sediment Pathogens	<ul style="list-style-type: none"> <li>Vehicles, people/tools working in or near water</li> <li>Access and activities outside of current drinking water catchment</li> </ul>	<ul style="list-style-type: none"> <li>Condition: No pets allowed</li> <li>Ground patrol monitoring</li> </ul>
Safety/CRD Risk	<ul style="list-style-type: none"> <li>Potential for miner to be injured on CRD property</li> </ul>	<ul style="list-style-type: none"> <li>Condition: Radio required for travel on Greater Victoria Water Supply Area roads.</li> <li>Condition: Watershed orientation</li> <li>Condition: Access Agreement indemnification and waiver</li> <li>Condition: Vehicle and liability insurance</li> </ul>
Economic	<ul style="list-style-type: none"> <li>Administration effort</li> </ul>	<ul style="list-style-type: none"> <li>Ground patrol field time</li> </ul>
Inter-Governmental	<ul style="list-style-type: none"> <li>Entry/access required under provincial Acts</li> </ul>	<ul style="list-style-type: none"> <li>Condition: Valid tenure held by the applicant and Free Mining Certificate up-to-date</li> </ul>

### **CONCLUSION**

The CRD has received a special use and access application to conduct placer mining activities on tenures held in the Leech Water Supply Area and Sooke Water Supply Area. The miner meets the requirements of the CRD for mining access. Access should be granted to the miner's tenures in the Leech WSA consistent with CRD Policy and Procedures. The newly acquired tenures located partly within the Sooke WSA require review with the Ministry of Energy and Mines prior to consideration of special use and access approval.

### **RECOMMENDATION**

That the Regional Water Supply Commission authorize access and special use to Chad Bartlett to access placer tenures #1046940 and #1047461 in the Leech Water Supply Area from October 18, 2017 to April 30, 2018, with the conditions required in the Access Agreement.

Submitted by:	Robert Walker, Manager Wildfire, Security & Emergency Response
Concurrence:	Annette Constabel, MSc, RPF, PMP, Senior Manager, Watershed Protection
Concurrence:	Ted Robbins, BSc, CTech, General Manager, Integrated Water Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

RW/AC:so:mm

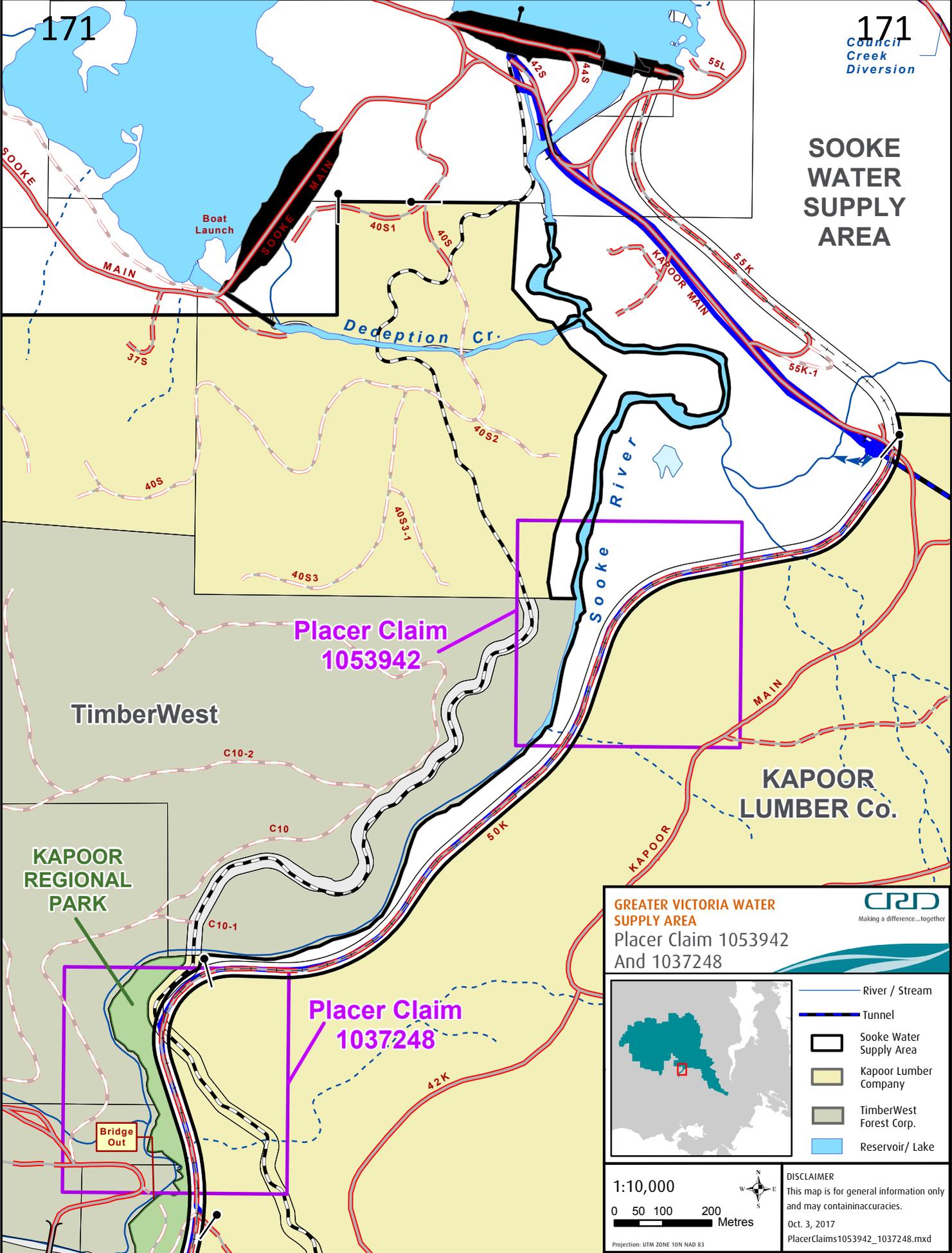
Attachments:

1. Map of Placer Tenure # 1053942 and #1037248 in the Sooke WSA
2. Redacted Access and Special Use Request Application Forms
3. 2017 Access Agreement

171

171  
Council  
Creek  
Diversion

# SOOKE WATER SUPPLY AREA



TimberWest

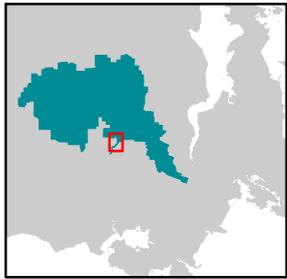
KAPOOR LUMBER Co.

KAPOOR REGIONAL PARK

Placer Claim 1053942

Placer Claim 1037248

GREATER VICTORIA WATER SUPPLY AREA  
Placer Claim 1053942  
And 1037248



- River / Stream
- Tunnel
- Sooke Water Supply Area
- Kapoor Lumber Company
- TimberWest Forest Corp.
- Reservoir / Lake

1:10,000

0 50 100 200 Metres

**DISCLAIMER**  
This map is for general information only and may contain inaccuracies.  
Oct. 3, 2017  
PlacerClaims1053942\_1037248.mxd

Projection: UTM, ZONE 10N, NAD 83



Making a difference...together

Integrated Water Services, Watershed Protection Division  
EXTERNAL APPLICANT ACCESS  
AND SPECIAL USE REQUEST  
GREATER VICTORIA WATER SUPPLY AREA

Application No. 00:00489

Please Fill Out All Applicable Sections.

**Primary Contact**

Applicant's Name: Chad Daniel Bartlett Name of Agency\*: Vipac (associated)

Applicant's Title: Mr. Phone: [REDACTED]

Applicant's Supervisor: [REDACTED] Phone: [REDACTED]

Agency Street Address: [REDACTED]

City/Prov: Victoria, BC P. Code: [REDACTED]

Agency Email: [REDACTED] Agency Fax: [REDACTED]

Other Agency Numbers (cell, pager): [REDACTED]

Agency Emergency Contact: Name: [REDACTED] Phone: [REDACTED]

Note: If Applicant is representing a group or work crew that will be using a single vehicle and working in the same location at all times, only one full application form is required. Provide contact information for all of the other workers in the crew on an *Additional Applicants Access Request* form. Orientation is required for the entire group.

\* If Applicant is not representing a group or agency, indicate 'Individual'.

**Personal Contact Information** (See Privacy Statement below.)

Home Address: Street: [REDACTED]

City: Victoria Prov. BC P. Code: [REDACTED]

Home Phone: [REDACTED] Cell Phone: [REDACTED]

Email: [REDACTED] Other: [REDACTED]

Personal Emergency Contact: Name: [REDACTED] Phone: [REDACTED]

**Privacy Statement**

Personal information contained on this form is collected under the authority of the Local Government Act and is subject to the Freedom of Information and Protection of Privacy Act. The personal information will be used for purposes associated with the security of infrastructure and personnel within the Greater Victoria Water Supply Area. Enquiries about the collection or use of information in this form can be directed to the Manager of Wildfire, Security and Emergency Response at 250-391-3566. The form may be shared with the Regional Water Supply Commission with some personal identifiers redacted.

**Project / Purpose / Proposed Activity**

Project Name / Purpose of Application (please provide supporting documents)/Proposed Activity: Placer Mining titles: 1046940, 1047461, 1037248 and 1053442

FMC: 269228

Note: Research Applications must be coordinated through the Watershed Protection Division. Please attach a copy of the research proposal and or work plan

Placer Miner Application - Attach claim location map and Claim Number: 269228

Sponsoring Integrated Water Services (IWS) Division or other CRD Department (check one):

Infrastructure Operations     Infrastructure Engineering     Watershed Protection

Water Quality     Other CRD Department: [REDACTED]

No CRD Sponsor

Name of Water Services Access Sponsor (Division Representative): Rob Walker

Name of Water Supply Area Co-Sponsor (Project Manager): [REDACTED]  
(If Required)

Vehicle, Equipment and Transporting Dangerous Materials Information

Vehicle Make: \_\_\_\_\_ Model: \_\_\_\_\_ Colour: \_\_\_\_\_  
 Vehicle Marking (Logo etc.): \_\_\_\_\_ License Plate Number: \_\_\_\_\_  
 Transporting Other Equipment (i.e. Heavy Equipment, Boat)?  Yes  No  
 If yes, what is it? \_\_\_\_\_  
 Transporting Fuel, Lubricants<sup>(1)</sup>, Chemicals or other Hazardous or Dangerous Material?  Yes  No  
 If yes<sup>(2)</sup>, what is it and how much? gasoline (fuel) - 2 litres  
 Transporting Dangerous Goods Certification Required?  Yes  No  
 Transporting Dangerous Goods Certification Number: \_\_\_\_\_

<sup>(1)</sup> Over and above that normally found in the vehicle or piece of equipment. <sup>(2)</sup> Please attach MSDS for each product.

Access Requirements To be filled out in consultation with Sponsor

Location of Work or Activity (be specific and note all locations): See Map, titles 104690, 1047461, 1037243, and 1053992  
 Access Dates: From: Sept 15<sup>th</sup> 2017 To: on going (future dates)  
 Monday to Friday Times: Day light hrs  Weekend Times: Day light hrs  
 Statutory Holidays Which ones? All Times: Day light hrs

Equipment Requirements To be filled out in consultation with Sponsor

The following equipment is required; please indicate if you are requesting a loan

VHF Radio - CRD Water Frequencies <sup>(1)</sup>	Loan Requested?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Emergency Spill Kit	Loan Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Wildfire Equipment	Loan Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

<sup>(1)</sup> If requesting approval to program personal radio to CRD Water Frequencies, please provide the following information:

Industry Canada File and License Number: 100000084045 and 01073998-001

On Site Safety Considerations

Applicable Safety Plan provided? (details) Radio contact, fire extinguisher, GPS  
 First Aid cert. / equip. to be provided: yes

Insurance

Proof of Insurance Provided:

Vehicle:  Yes  No Firefighting (April 1 – October 31)  Yes  No  
 General Liability  Yes  No

Permission to Transit Adjacent Private Property

Permission Granted:  Yes  No  N/A \* Written Permission Attached:  Yes  No

Note: By signing here the Applicant declares (and declares on behalf of group applicants), that the information provided is true and accurate.

Applicant's Signature: \_\_\_\_\_ Date: Sept 15<sup>th</sup> /17  
 IWS Sponsor Signature: X \_\_\_\_\_ Date: X Sept 22/17  
 WSA Co-Sponsor: \_\_\_\_\_ Date: \_\_\_\_\_  
 (If Required)

For Internal CRD Use Only

Initial Risk Review

- Contaminants (Hazardous material amounts, boat, heavy equipment) \_\_\_\_\_
- Pathogens (Sani facilities, animals) \_\_\_\_\_
- Wildfire (Blasting, grinding, welding) \_\_\_\_\_
- Sediments / Nutrients PLASTER MINING IN WEST LEECH RIVER.
- Cultural / Environmental \_\_\_\_\_
- Safety (Training & Equip., Appropriate Plan / Procedures) IN ORIENTATION

Initial Comments:

NEW APPLICANT.

Conditions and Restrictions:

- Risk Mgmt. Plan \_\_\_\_\_

Assessed Overall Risk to Water Quality or Other Values

Comments: \_\_\_\_\_

- Low
- Medium<sup>1</sup>
- High<sup>1</sup>

<sup>1</sup> Any application deemed a Medium or High Risk must be reviewed by the Senior Manager, Watershed Protection or Access Review Committee. Attach rationale for Medium or High Risk designation and recommendations on course of action.

Fire Danger Rating

- Expected fire danger rating during access dates  Very Low  Low  Moderate  High  Extreme
- CRABBE* → *SHUT DOWN*

Inspections

Does the applicant require inspections or other action upon entry?

- No  Yes Provide Details: \_\_\_\_\_

Insurance

Proof of Insurance Provided:

- Vehicle:  Yes  No Firefighting (April 1 – October 31)  Yes  No *VIPMA*
- General Liability  Yes  No *VIPMA*

Security Chargehand Comments

Previous Issues / Application Checks NEW APPLICANT

Initial Determination

- Recommend approval of the application
  - Do not recommend approval of the application (be specific): \_\_\_\_\_
  - Recommend approval of the application with requirements / restrictions as above and in addition: \_\_\_\_\_
  - Refer to Sr. Manager, or ARC (Medium or High Risk) \_\_\_\_\_
- Results of Further Risk Review: \_\_\_\_\_

CRD Signatures

SEP 22 2017

Security Chargehand, Watershed Protection

Date

Manager, Wildfire, Security & Emergency Response

Date

(If Required)

Senior Manager, Sponsoring IWS Division (or Water Supply Area Co-Sponsor)

Date

(If Required)

Senior Manager, Watershed Protection Division

Date

Approval for Access and Special Use Provided by Regional Water Supply Commission

Yes Date: \_\_\_\_\_  No, not required

General Manager, Integrated Water Services

Date

Access Times and Keys

Annual (Expires Jan 31) 2018 Date From: \_\_\_\_\_ Date To: \_\_\_\_\_

7am - 4:30pm  24/7  Monday to Friday  Weekends  Statutory Holidays

Autogate Access:  Goldstream  Sooke

Gate Key Requirements: (refer to Water Supply Area Access Control Maps)

Gates: Specify: NEEDS MAIN GATE.

Facilities: Specify: \_\_\_\_\_

Refundable Key Deposit

Contract Holdback (none)  Other (\$500)

Radio Frequencies

Permission to Program  File Number Checked  Licence Number Checked

Ongoing  Long Term (> 1 year)  Short Term Expiry: \_\_\_\_\_

Orientation and Key Loans

Key Deposit Paid  Orientation Complete Date: 2017-09-21

Photo ID Card  Autogate Active  Dashboard ID Card

Key(s) issued / No(s): \_\_\_\_\_  Access Info. Folder

Return Date: \_\_\_\_\_ Security Chargehand or Alternate (Initials): NB

Applicant Declaration

By signing here the Applicant confirms completion of orientation; declares that they are going to an approved worksite(s) within the GVWSA to carry out work authorized by the CRD IWS or its representatives; understands and agrees to adhere to applicable Bylaws, policies and procedures; are not currently ill with a known waterborne communicable disease; will use the sanitary facilities provided, and; will follow the instructions of CRD IWS personnel when required.

The Applicant confirms equipment loans as listed above and understands that any keys or equipment issued remain the property of CRD IWS. The applicant declares (and declares on behalf of their group or work crew as required), that the keys or equipment will be surrendered upon notice, that **keys must not be copied or loaned to others** and that they will return keys and equipment on the due date or make arrangements for the renewal of borrowing privileges.

Applicant

Date

Sept 21 / 2017

Routing

- Applicant / Water Services Access Sponsor
- Security Chargehand, Watershed Protection
- Manager Wildfire, Security and Emergency Response
- Senior Manager WP (and ARC - If Required)
- If Required, Sr. Manager, Sponsor Div. / WSA Co-Sponsor
- If Required, General Manager

Data Entry Date: \_\_\_\_\_

Initials: NB

## Attachment 3

This AGREEMENT made in duplicate as of: Day: 21 Month: Sept Year: 2017

BY AND BETWEEN:

**CAPITAL REGIONAL DISTRICT**  
625 Fisgard Street  
Victoria, BC V8W 1R7  
(Hereinafter called the "CRD")

AND:

Name: Chad Pantlett  
Street Address: [REDACTED]  
City: Victoria  
Province: BC  
Postal Code: [REDACTED]  
(Hereinafter called the "Licensee")

**Access to: - List all claims owned or co-owned that you require access -**

**Placer Claim Tenure Number(s)**

1046940 and 104761

**Mineral Claim Tenure Number(s)**

### RECITALS

- A. The CRD holds title to the area described as the Greater Victoria Water Supply Area (the "GVWSA"). It is the intention of the CRD to manage the GVWSA to provide for water supply for the residents of Greater Victoria. As such, the CRD manages the GVWSA in the general interest of protecting and enhancing environmental values and specifically, minimizing risk to water quality from stressors such as wildfire, erosion and introduction of hazardous materials or pathogens. In addition, the CRD conducts all operations in the interest of ensuring safety of employees and other Water Supply Area users authorized for access.
- B. The Licensee holds Placer Claim Tenure Number(s) – as listed above – and Mineral Claim Tenure Number(s) – as listed above –, (the "Claims") granted by the Province of BC. The Licensee intends to access and operate the Claims, which are located within the GVWSA.

The CRD and Licensee, in consideration of their mutual duties and responsibilities to one another as hereinafter set forth, enter into an agreement on the following terms (the "Agreement"):

## ARTICLE 1 – ACCESS

- 1.1 The CRD hereby grants the Licensee access to the Claims by way of – name gate(s) accessing – Weeks Gate Key  
(Each licensee will be given a prescribed gate to enter and road to access their claim), for a period of one year, commencing on the date of signing this Agreement. The granted access does not include access for the purposes of general prospecting.
- 1.2 The CRD reserves the right to temporarily lift the permission or make alterations to the route for access granted under Article 1.1 in the event of emergency, fire hazard or other operational reason.
- 1.3 Nothing in this Agreement shall be construed as permitting use of lands or waterbodies within the GVWSA for any activities outside of permitted mining activities on the claim(s) referenced above or for permitted access to the claim(s) referenced above.
- 1.4 Nothing in this Agreement shall be construed as permitting access across any lands not held by the CRD. If crossing the lands of a third party is required in order to access the Claims, it is the responsibility of the Licensee to obtain all necessary permissions for access directly from the third party.

## ARTICLE 2 – PROCEDURES

- 2.1 The Licensee hereby covenants and agrees that prior to entry onto the GVWSA, the Licensee will:
- a) On an annual basis apply to the CRD Watershed Protection Division (“**Watershed Protection**”) by completing an External Applicant Access Request Form for the GVWSA.
  - b) Attend an orientation session in which the Security Chargehand or designate will review the GVWSA Policies and procedures including the following:
    - Use of keys/radios and roads
    - Health and sanitation
    - GVWSA entry and registration procedures
    - Use of petroleum products, transportation of hazardous goods
    - Spill response
    - Preventing and responding to wildfires
    - Reporting vandalism, trespass or other threats to water quality
    - General conduct and conditions
  - c) Obtain a Dashboard Advisory Card from the CRD, which the Licensee shall display in plain sight on the dashboard of any vehicle the Licensee uses while parked on GVWSA lands.
  - d) Abide by the following restrictions:
    - The Dashboard Advisory Card is valid only for the mining purposes of the Licensee. Keys and Dashboard Advisory Cards are non-transferable and may not be loaned to a third party.

- Keys must not be duplicated. Licensees are responsible for the security of their keys. Lost keys or Dashboard Advisory Cards must be reported to the CRD immediately and may not be replaced.
  - Gates must be kept locked at all times, with the exception of the Goldstream gate which is kept open during business hours (07:00 to 16:30 Mon-Fri).
  - Vehicles used by the Licensee require a VHF radio with CRD Watershed Road Direct Frequency Channel 4.
- e) Provide a deposit for any keys to be issued and proof of insurance subject to Article 6. Key deposits are refundable, subject to the key and any other equipment being returned to Watershed Protection in good working condition.

### **ARTICLE 3 – ROAD USE**

- 3.1 The Licensee will use the roads in a manner that does not interfere with **the CRD's** use of the roads, and will advise the CRD at least two days in advance of any equipment movement on the roads.
- 3.2 The CRD reserves the right to fully close road access in the event of high or extreme fire hazard and/or other extreme weather conditions.
- 3.3 The CRD does not assure vehicle access to the Licensee at all times. Vehicle access may be blocked for indefinite periods as a result of storms (e.g. snowfall, windfall, etc.) or for the operational requirements of the CRD.
- 3.4 The Licensee will under no circumstances alter, modify, repair, maintain, extend or construct roads on the GVWSA without the prior written approval of the CRD.
- 3.5 The Licensee will compensate the CRD for any Licensee caused damaged to GVWSA roads or roaded infrastructure including culverts, bridges and signs. All damage must be immediately reported to the CRD.
- 3.6 Radio call-in procedures must be followed when using roads in the GVWSA.

### **ARTICLE 4 – GENERAL CONDITIONS**

The Licensee agrees to adhere to the following requirements:

- 4.1 To attend a thirty (30) minute orientation seminar (Article 2.1(b)) prior to entering the Lands, unless accompanied by Watershed Protection staff.
- 4.2 To adhere to the CRD Water Supply Protection Bylaw #2804 at all times while in the GVWSA.
- 4.3 The Licensee and any accompanying persons must comply with and be bound by the CRD's **Watershed Policies and Procedures**, which are provided in the orientation session. An 'Additional Applicants Application' Form will be required for each accompanying person.

- 4.4 The Licensee must ensure that any persons accompanying the licensee must comply with the following conditions: be identified to CRD; sign a CRD waiver, and; hold insurance coverage the same as described in Article 6 below.
- 4.5 If the Licensee's interest in the Claims is transferred, cancelled, forfeited, or otherwise found to be invalid, this Agreement will be rendered null and void.
- 4.6 No firearms will be brought onto the GVWSA. For the purposes of this section, 'firearm' has the meaning set out in the *Firearm Act* (British Columbia), and includes any gun using, as a propellant, compressed air, explosives or gas.
- 4.7 The Licensee is prohibited from erecting any temporary or permanent shelters within the GVWSA and shall not overnight on GVWSA lands, except in pre-existing cabins or shelters that have been expressly permitted by the CRD.
- 4.8 The Licensee is prohibited from erecting any temporary or permanent shelters within the GVWSA and shall not overnight on GVWSA lands. The CRD may, upon application, provide written authorization for specific overnight stays for mining purposes only. Application must be made well in advance of the dates of planned activity.
- 4.9 No waste of any type can be discharged into streams, or onto watershed lands.
- 4.10 Domestic animals are not allowed within the GVWSA at any time.
- 4.11 The Licensee is responsible for all damage incurred to the CRD's property or facilities.
- 4.12 If, prior to the expiry date of this agreement, the CRD and the Licensee enter into another access agreement, the terms of that agreement shall govern in the event of any conflict of terms.
- 4.13 This Agreement may be cancelled by either party for any reason with 30 days written notice to the other party.

#### **ARTICLE 5 – RELEASE AND INDEMNITY**

- 5.1 The Licensee covenants and agrees that the CRD, its employees, officers, contractors and agents, will not be liable to the Licensee or any person or entity for incidental, consequential, resulting or special loss or damage of any kind whether foreseeable or not, however caused, arising out of or in any way connected with this Agreement or the Licensee hereby granted.
- 5.2 The Licensee covenants and agrees to indemnify and save harmless the CRD, its employee, officers, contractors and agents, from and against all losses, liabilities, claims, damages, costs, fines, fees or expenses of any kind or nature whatsoever made or brought against the CRD, arising from the Licensee's exercise of its rights under this Agreement.
- 5.3 The CRD is under no obligation to facilitate or otherwise assist the Licensee in accessing their claims through the GVWSA.

**ARTICLE 6 – INSURANCE**

The Licensee will obtain and maintain throughout the term of this Agreement:

- (i) Public liability insurance and property damage insurance in the minimum amount of \$3,000,000.00 with respect to death or injuries to persons or property caused by or arising out of or attributable to the exercise of the rights granted hereunder, and firefighting expenses liability insurance in which the limit of liability shall not be less than \$1,000,000.00.
- (ii) Automobile liability insurance covering bodily injury (including passenger hazard) and property damage arising from the operating of owned and non-owned vehicles on the Lands, with inclusive limits of not less than \$2,000,000.00 for any one accident.

Proof of insurance must be received by the CRD prior to entry onto the GWWSA.

**ARTICLE 7 – CONTACTS**

- 1. For the Licensee:  
 Name: *Cheryl Bartlett*  
 Street Address: [REDACTED]  
 City: *Victoria*  
 Province: *BC*  
 Postal Code: [REDACTED]  
 Telephone: [REDACTED]  
 Email: [REDACTED]

- 2. For the CRD:  
 Annette Constabel, Senior Manager  
 Watershed Protection  
 Telephone: (250) 391-3556  
 Email: [aconstabel@crd.bc.ca](mailto:aconstabel@crd.bc.ca)

-Or-

- 3. For the CRD:  
 Security Chargehand  
 Watershed Protection  
 Telephone: (250) 391-3551  
 Email: [nprenger@crd.bc.ca](mailto:nprenger@crd.bc.ca) or  
[nboyne@crd.bc.ca](mailto:nboyne@crd.bc.ca)

Signed and Delivered by or on behalf of the Licensee (or authorized signatory of the Licensee)

Signed and Delivered by or on behalf of the Capital Regional District

Signature 

Name - Printed Chad Bartlett

Date 17 Sept/17

Ted Robbins, ASCT  
General Manager, Integrated Water  
Services

Date

Capital Regional District  
625 Fisgard Street  
Victoria, BC V8W 1R7, Canada  
Telephone: (250) 474-9600  
Fax: (250) 474-4012  
Email: [water@crd.bc.ca](mailto:water@crd.bc.ca)



**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
 MEETING OF WEDNESDAY, OCTOBER 18, 2017**

**SUBJECT 2017 WILDFIRE SEASON - GREATER VICTORIA WATER SUPPLY AREA**

**ISSUE**

To report on highlights of the 2017 wildfire season for the Greater Victoria Water Supply Area (GVWSA).

**BACKGROUND**

**Wildfire Season Weather**

The 2017 wildfire season was characterized by an extremely wet winter and spring followed by an extremely dry summer. Figure 1 shows 2017 rainfall compared with the average rainfall of the last 20 years for the Sooke Water Supply Area (WSA).

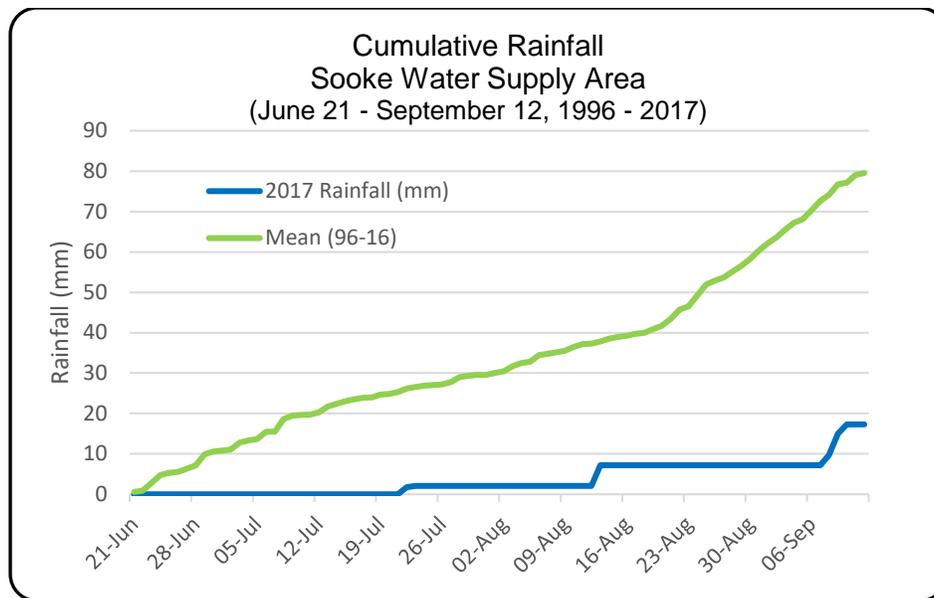


Figure 1. Cumulative summer rainfall for the Sooke Water Supply Area 1996 - 2017.

The fifth highest number of days in Extreme Fire Danger Rating<sup>1</sup> were recorded in the Sooke WSA as illustrated in Figure 2. Compared to the last 20 years, the number of days in Extreme (53) was greater than average (32.5) and the number of days in High (29) was less than average (36). A trend line for the last 21 years shows an increasing total of days in High and Extreme Fire Danger Rating.

<sup>1</sup> Fire Danger Rating is a relative index of how easy it is to ignite vegetation, how difficult a fire may be to control, and how much damage a fire may cause, based on the daily and cumulative weather conditions. Fire Danger Ratings are calculated daily for each Water Supply Area and the rating is used to direct the level of preparedness and activities undertaken.

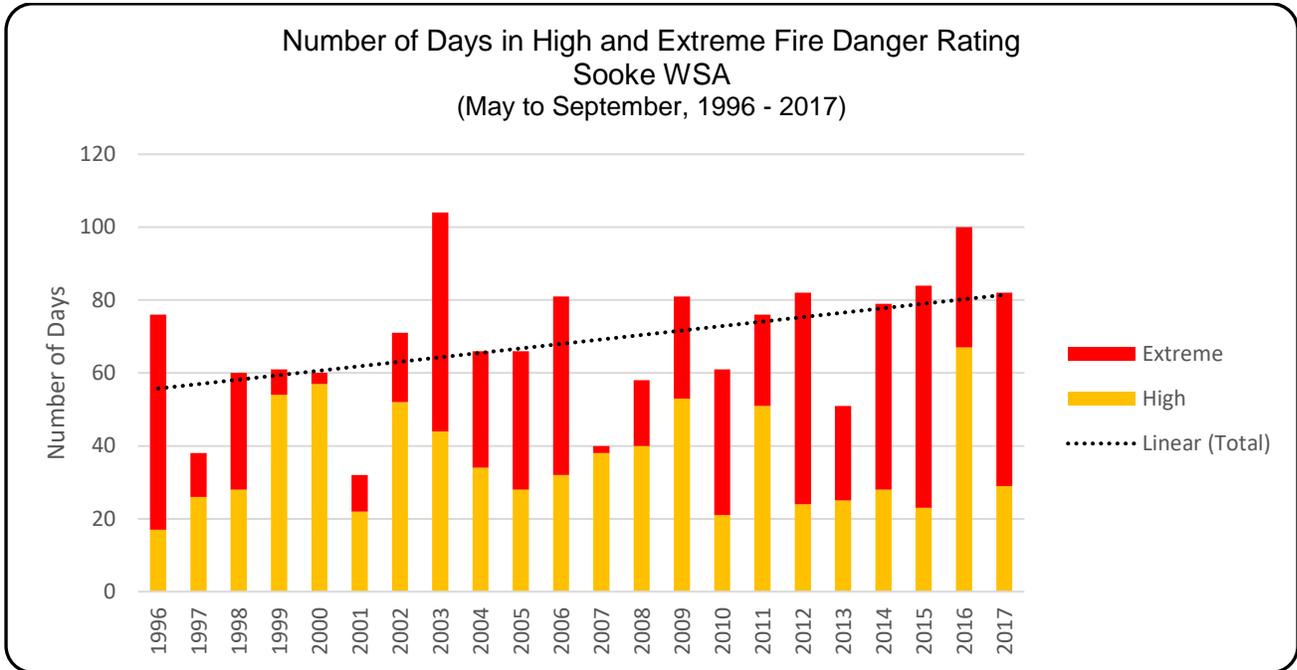


Figure 2. Number of days in High and Extreme Fire Danger Rating with trend for total days in High and Extreme, 1996 - 2017 for the Sooke Water Supply Area.

**Wildfire Preparedness**

In 2017, 54 Capital Regional District (CRD) staff, including 24 Integrated Water Services (IWS) staff passed the required CRD fireline fitness test, annual firefighting refresher course and were available for ground patrols and wildfire response. Eight CRD staff members passed the higher national standard for fireline fitness and participated in helicopter hover exit training to qualify as Type 1 firefighters for the BC Wildfire Service and as part of CRD’s Initial Attack Crew Leader Program.

Water availability for wildfire suppression is always a concern during the typical hot and dry summers in the GVWSA. IWS staff monitor and maintain a network of natural source and water tank pumping stations in the GVWSA to ensure that locations of available water for wildfire suppression are known. In 2017 at the height of wildfire season, 32 of 45 pumping stations had sufficient water for pumping.

Other Watershed Protection preparedness activities included preparing the 2017 Wildfire Preparedness Plan and interagency meetings with the BC Wildfire Service (BCWS) to discuss GVWSA and regional preparedness, equipment, facility and personnel training, readiness and deployment.

Municipal and volunteer fire department resources are relied upon to respond to all structural fires in interface areas, while wildfire fighting trained resources are required in forested areas. In interface fires, both areas of expertise are required to work in collaboration. CRD IWS staff meet annually with neighbouring fire departments to exchange information on resources, available equipment and collaboration should the need to rely on each other’s resources arise. The CRD, as requested, has conducted training of fire department staff in wildfire fighting in preparation for interface fires. In extreme need, structural firefighters can fight wildfires under the direction of wildfire fighters, as occurred in the BC Interior this summer.

## Wildfire Prevention

The GVWSA forest fuel management program continued in 2017 with new work on Horton Ridge to extend the fuel break further towards the north (total of 4.5 km). Horton Ridge fuel management continues this fall with completion expected in spring 2018 (Attachment 1 Map).

Past fuel management projects require annual or biannual maintenance to thin or remove saplings as well as invasive species (typically Scotch broom). In 2017, existing FireSmart<sup>2</sup> areas (Sooke Caretaker house, Sooke Lake boathouse, Japan Gulch Treatment Plant) and fuel reduction corridors to the east and south were maintained.

Future fuel management work will be focused to the northeast next to the Sahtlam-Pike BC Hydro corridor (Attachment 1 Map). Work is scheduled to begin under contract in 2018 with capital funding. Staff continue to assess provincial Strategic Wildfire Prevention Initiative (SWPI) funding opportunities and opportunities to partner with municipalities and other agencies in interface areas.

GVWSA wildfire detection patrols are conducted both by vehicle and aircraft. The utilization of aircraft patrols is scheduled based on wildfire danger class. The average number of wildfire detection air patrols is 121 (2008 - 2016). There were 122 aircraft patrols in 2017. The total number of air patrol flights was reduced by approximately 13 during the season as a result of 8 days with significantly reduced visibility from BC Interior and Pacific Northwest wildfire smoke.

Watershed Protection plans to burn approximately 60 slash piles resulting from a variety of watershed management activities over the winter of 2017/2018 to reduce potentially dangerous accumulations of forest fuels in the GVWSA. The planned burns are authorized under an annual burn plan approved by the BC Wildfire Service.

## Wildfire Response

The 2017 wildfire season was a record-breaking one in BC with a Provincial State of Emergency being declared on July 6 and not lifted until September 15, and over 45,000 people evacuated as a result of wildfires and an unprecedented number of hectares burned. There were no wildfires in the GVWSA during the 2017 wildfire season and relatively few fires in southern Vancouver Island. In the Pacific Northwest 400 ha were burned by wildfire in Tacoma's water supply area, and in Portland 60 ha of water supply area burned as part of the 19,695 ha fire in the Columbia Gorge. Staff look forward to learning from the experience of Pacific Northwest water utility colleagues in the year ahead.

While no wildfires occurred in the GVWSA, there was a 1.2 ha wildfire to the south in Sea to Sea Regional Park on Mt. Manuel Quimper on July 4 and a spot fire near the Niagara rail trestle in Sooke Hills Wilderness Park to the east on October 1 (Attachment 1 Map). IWS staff provided staff and equipment to the Mt. Manuel Quimper fire and facilitated access to the Niagara trestle fire.

The only lightning in the vicinity of the GVWSA occurred on May 30 with the closest strike approximately 1 km east of Butchart Lake (Attachment 1 Map). Watershed air patrols monitored the strike location for several days but no wildfires resulted from the lightning.

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<sup>2</sup> FireSmart refers to removal and reduction of forest fuels around infrastructure, in zones with treatments of increasing intensity closest to the infrastructure.

Due to an extremely busy provincial wildfire season, the BC Wildfire Service requested CRD IWS resources under the terms of the Wildfire Resource Agreement to provide wildfire protection coverage for Vancouver Island. IWS supplied personnel and equipment to the Province beginning on June 27 and ending on September 11, 2017. In total, CRD staff spent 188 person-days on export to the Coastal Fire Centre. Of those person-days, 8 were spent directly on the fireline on three different wildfires (1, 1.2, 1.2 hectares), 37 were spent stationed at Fire Bases (Cobble Hill, Errington, Port Alberni) and 143 were spent on standby based in Victoria.

Included in the total days, two CRD staff spent a total of 18 days (IWS 17, Regional Parks 1) working as the Response Officer for the South Island and Mid Island Fire Zone including 3 days as the Incident Commander on a 1 ha wildfire.

The export of staff under the Wildfire Resource Agreement cost approximately \$66,600 in wages, equipment and training; with an expected recovery from the Province of approximately \$115,000. In comparison, in a low activity fire season, export costs may slightly exceed recovery.



Figure 3: Mt Manual Quimper fire in Sea to Sea Regional Park, July 4 – aerial assistance from the Province under the terms of the CRD – BCWS Wildfire Response Agreement.

## **CONCLUSION**

2017 was the most challenging wildfire season ever faced by the Province of British Columbia with a Provincial State of Emergency lasting from July 6 to September 15. The CRD was able to contribute significantly to provincial efforts under the Wildfire Resource Agreement, while ensuring sufficient resources remained available to protect the Greater Victoria Water Supply Area. CRD deployment of staff and equipment to the BC Wildfire Service on Vancouver Island allowed provincial firefighting resources to be allocated to the BC Interior, and provided further opportunity for development of CRD staff wildfire response capability. The Greater Victoria Water Supply Area did not experience a wildfire during 2017.

## **RECOMMENDATION**

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

Submitted by:	Robert Walker, Manager Wildfire, Security & Emergency Response
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Concurrence:	Annette Constabel, MSc, RPF, PMP, Senior Manager, Watershed Protection
Concurrence:	Ted Robbins, BSc, CTech, General Manager, Integrated Water Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

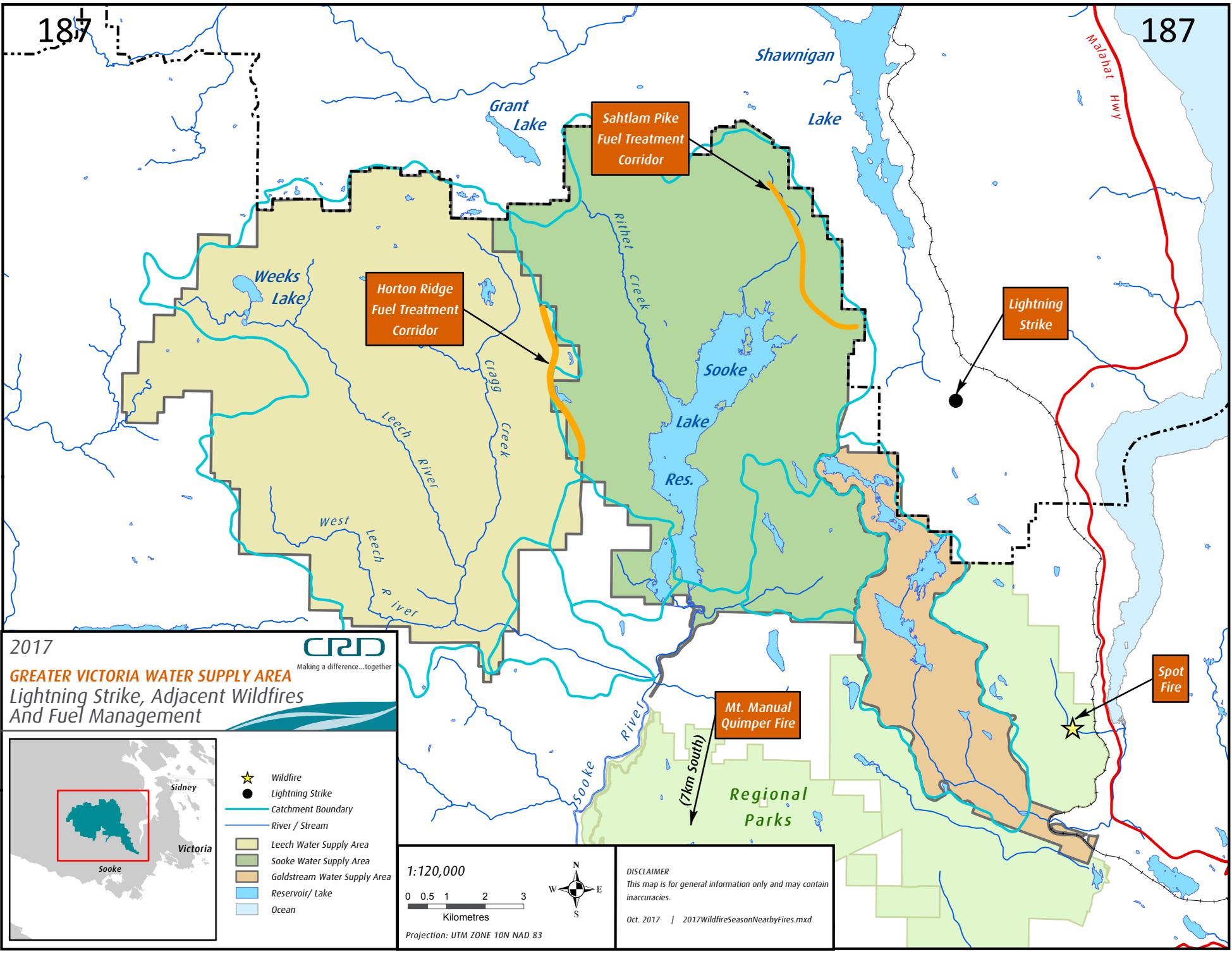
RW/AC:mm

Attachments:

1. 2017 GVWSA Lightning Strike, Adjacent Wildfires and Fuel Management Map

187

187



2017  
**GREATER VICTORIA WATER SUPPLY AREA**  
*Lightning Strike, Adjacent Wildfires  
 And Fuel Management*



- ★ Wildfire
- Lightning Strike
- Catchment Boundary
- River / Stream
- Leech Water Supply Area
- Sooke Water Supply Area
- Goldstream Water Supply Area
- Reservoir/ Lake
- Ocean

1:120,000

0 0.5 1 2 3  
Kilometres

Projection: UTM\_ZONE 10N NAD 83

**DISCLAIMER**  
 This map is for general information only and may contain inaccuracies.

Oct. 2017 | 2017WildfireSeasonNearbyFires.mxd

**REPORT TO REGIONAL WATER SUPPLY COMMISSION**  
**MEETING OF WEDNESDAY, OCTOBER 18, 2017**

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**SUBJECT**     **Water Quality Report for Sooke Lake Reservoir – May-August 2017**

**ISSUE**

To present the monitoring results for water quality conditions observed in Sooke Lake Reservoir for the period of May-August 2017.

**BACKGROUND**

The Capital Regional District (CRD) supplies drinking water to the water distribution systems across Greater Victoria via the Regional Water Supply System. As a requirement under the *BC Drinking Water Protection Act*, the CRD monitors and reports on water quality to ensure the region's drinking water supply is safe and potable. The results are presented on a regular basis, directly to the Commission and Island Health, and to the general public through the CRD website.

All public drinking water systems in BC must comply with the *BC Drinking Water Protection Act* and the BC Drinking Water Protection Regulation. In addition, the CRD relies upon water quality parameters in the Guidelines for Canadian Drinking Water Quality and guidelines developed by the US Environmental Protection Agency to inform the CRD's water quality monitoring program.

Water quality monitoring is one of the cornerstones of the multi-barrier approach to providing safe, potable drinking water to the region's residents. The monitoring program ensures proper integration of an understanding of source waters, treatment process, distribution infrastructure operations and maintenance, and the delivery of water to customers. The program also ensures that potential risks or concerns are effectively managed to ensure a safe drinking water supply.

Appendix A summarizes the monitoring results for Sooke Lake Reservoir, the primary water source for the Regional Water Supply System serving Greater Victoria. Graphs comparing data with previous years and long-term averages are attached as Appendix B. Note: In all charts, 2017 data are shown in red.

The water quality monitoring data from May through August 2017 indicate that the source water in the Sooke Lake Reservoir was of good overall quality. However, for about two weeks between the end of July and the beginning of August, the lake experienced an unprecedented spike in total coliform bacteria, one of the two indicator species for potential bacteriological contamination. Data indicate that an external contamination event can be ruled out and that an unusual mixing of the water, associated with mobilization of fine organic particles and decomposing bacteria from the bottom of the lake, was the likely cause of this event.

Staff are currently investigating the potential factors and mechanisms that could have led to this event and will present a report to the Commission upon completion of the investigations. The existing water disinfection system at both treatment plants (Japan Gulch, Sooke) operated effectively. Public health was not compromised at any point in the event. Since then, lake conditions have returned to normal patterns.

**Regional Water Supply Commission – October 18, 2017**  
**Water Quality Report for Sooke Lake Reservoir – May-August 2017**

2

The Sooke Lake Reservoir is a large, stable ecosystem that provides an excellent foundation for our regional drinking water system. The monitoring program remains effective for ensuring oversight of the drinking water system. Public reporting of our monitoring results maintains transparency and promotes confidence with the public and all stakeholders.

**RECOMMENDATION**

That the Regional Water Supply Commission receive the Sooke Lake Reservoir monitoring results for May-August 2017 for information.

Submitted by:	Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Ted Robbins, B.Sc., C.Tech., General Manager, Integrated Water Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

CM/JB:cam

Attachments: Appendix A – Summary of Water Quality in Sooke Lake Reservoir  
(May-August 2017)  
Appendix B Water Quality Trends in Sooke Lake Reservoir (2011-2016)  
Figures 1-13



Making a difference...together

## Appendix A

### SUMMARY OF WATER QUALITY IN SOOKE LAKE RESERVOIR May-August 2017

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#### Physical Parameters

*Water Levels.* Sooke Lake Reservoir remained at full (100%) service level until May 1, due to the cold and wet spring weather this year, which is a full month later than in 2016. After May 1, and for the entire reporting period, the systems recorded only 101 mm of precipitation in the Sooke Lake watershed. In combination with strong water demand during this dry period, the reservoir levels continuously decreased at approximately the same rate as in recent years. On August 31, Sooke Lake Reservoir was at 77% service level compared to 70% on the same day in 2016 (see Figure 1; note: in all charts, 2017 data are shown in red).

*Water Temperature.* The weekly average water temperature measured at the Japan Gulch Treatment Plant was below the aesthetic limit of 15°C until the end of July (Figure 2). The temperature trend-line during this reporting period differs from the pattern of recent years, due to the Capital Regional District's (CRD) water temperature management project that utilized different intake gates over the spring and summer, in an attempt to maximize the use of the limited cool water in the hypolimnetic zone of Sooke Lake's South Basin.

The concept of the temperature management project isolated cool water on the bottom of the lake for use later in the summer season when water temperatures typically exceed the 15°C aesthetic objective. However, a significant increase of total coliform bacteria concentrations close to the lake bottom resulted in a modified plan that utilized higher elevation gates for the raw water intake. As a result, the raw water temperatures at Japan Gulch Treatment Plant climbed above the 15°C threshold at the end of July.

After the high total coliform levels subsided in early August, the intake gates were changed again to lower elevation gates, which decreased the raw water temperature to historic levels, albeit still above the 15°C aesthetic objective. It is anticipated that the temperature guidelines exceedance will continue into the fall season as in previous years. Water temperatures in excess of 15°C can lead to a higher chlorine consumption to address potential increased bacterial growth in water infrastructure components. To address these impacts, the CRD incurs additional operational efforts and higher costs.

#### Water Clarity

*Turbidity.* Turbidity continued to remain well below the 1.0 NTU turbidity limit and typically below the long-term average (Figure 3). The high total coliform event at the end of July did not correlate with higher than usual turbidity levels. The low turbidity of the raw water allows the UV disinfection stage to remain effective at inactivating bacteria.

*Water Transparency.* The transparency of the lake water was high and consistent with the long-term average. In general, the data indicate very clear water throughout the reporting period (Figure 4).

#### Bacteria

*Total Coliform Bacteria and E. Coli.* The total coliform concentrations in the raw source water entering the Japan Gulch Disinfection Plant were very low and consistent with the long-term

average until the end of July (Figure 5). After switching to the lowest level intake gate on July 13 in a heavily stratified Sooke Lake South Basin, the total coliform concentrations began to rise on July 21 and peaked on July 28 at over 24,000 CFU/100mL.

Total coliform concentrations typically rise somewhat during the warm summer months and there have been a few occasions when the concentrations surpassed the 1,000 CFU/100mL level, an historical upper range for Sooke Lake Reservoir during the warm summer months, but this was an unprecedented event. After this peak, the total coliform concentrations decreased rapidly but remained higher than normal until the end of the first week in August. By August 7, the bacteria concentrations were back within a normal range for Sooke Lake during the summer season.

This event required the CRD to maximize the disinfection dosages at the Japan Gulch and the Sooke River Road Treatment Plants in order to ensure complete inactivation of potential pathogens. *E. coli* concentrations remained non-detect except for one result of 13 CFU/100mL on July 25, which was still below the USEPA Unfiltered Surface Water Rule. The lack of *E. coli* concentrations during the high total coliform event indicated that this event was not a contamination of the raw water by any external source but rather the result of an unusual mixing event that stirred up sediments from the bottom of the lake.

Throughout this event, CRD staff consulted closely with the Island Health Authority to coordinate the necessary steps to protect the public. Investigations into the mechanisms and factors that led to this unusual event are ongoing. CRD staff will submit a report to the Commission once the investigations are completed.

## Nutrients

In general, the nutrient concentrations during the reporting period confirmed an ultra-oligotrophic status of Sooke Lake Reservoir, which indicates very low productivity in an upland lake with a virtually undisturbed catchment. This lake status is demonstrated by very low overall nutrient concentrations with a high nitrogen:phosphorus ratio and dissolved organic nitrogen being the dominant constituent of the total nitrogen. These conditions allow only limited biological activity in the lake, thus ensuring a good quality source for unfiltered drinking water.

*Phosphorus.* The total phosphorus levels near the surface in the South Basin were generally low and fluctuated around the long-term average (Figure 6). Sampling Station 01 at the entrance to the South Basin exhibited two somewhat higher spikes in total phosphorus: one at the beginning of May and one at the beginning of August. These seem to be very localized and short-lived events likely influenced by wind and currents that had no measurable impact on the lake's biology. The total phosphorus levels near the surface in North Basin (Figure 7) were extremely low and well below the long-term average. In general, the very low phosphorus concentrations remain the limiting factor for biological production in Sooke Lake, which is considered favourable for a source of drinking water supply.

*Nitrogen.* The total nitrogen concentrations fluctuated within a normal range around the long-term average trend line during this reporting period (Figures 8 and 9). Sporadic rainfall and runoff events in May and June likely introduced some nitrogen into the lake's North Basin. These naturally added nutrients were then quickly consumed by aquatic organisms, which is an indication of a healthy and functioning food chain in the lake's ecosystem.

## Chlorophyll-a

Chlorophyll-a concentrations near the intake tower were close to the long-term average and similar to the levels seen during the same interval in previous years (Figures 10-12). The data indicate a generally low level of algal activity during the reporting period.

## Algae

Staff collected qualitative and quantitative algal samples more frequently than usual in this reporting period due to the extra monitoring required during the water temperature management project (late spring to early summer), as well as the high total coliform event in Sooke Lake Reservoir in mid to late summer. Quantitative samples taken from 1-metre depth at all sampling stations were subsequently archived.

There were no algal blooms during this reporting period and overall algal activity hovered close to the average (Figures 13, 14). A very slight increase in algal activity in June was attributed to shared dominance of two species belonging to the golden-brown (chrysophyte) algal group (Figures 15, 16). Some species in this group are known to produce harmless chemicals that smell or taste unpleasant; however, neither of the species that were dominant at that time are known to do so and therefore did not pose a water quality concern.

The slight increase in algal activity at the end of July and beginning of August was due to dominance shared by multiple species from three different groups of algae: the chrysophytes (three species), cryptomonads (two species) and haptophytes (single species-*Chrysochromulina parva*). Dominant species from the three above-mentioned algal groups are all known ecological indicators of ultra-oligotrophic to oligotrophic lakes such as Sooke Lake Reservoir and none were of concern to water quality. The haptophyte *Chrysochromulina parva* (Image A) is known to be particularly tolerant of higher levels of solar radiation than other algae. The concentration of this alga increased from the beginning of the reporting period and remained at elevated levels throughout July and August, consistent with the bright, hot days that occurred during this time period.

The total number of algal species found is one measure of diversity in a population; healthy, oligotrophic water systems, such as Sooke Lake Reservoir tend to have a high species diversity. In contrast, nutrient-enriched (eutrophic) lakes tend to have lower species diversity, due to their proneness to algal blooms of a single species that outcompete other species in the lake, thus reducing diversity. The range of number of species found in the qualitative samples taken this period (38-65 unique species) at the intake tower sampling location (SOL-00) was higher than both the first reporting period of 2017 and the same reporting period of 2016. The high diversity is indicative of good water quality and may have been due in part to one – or a combination of – factors, such as the water temperature management project via inducing strong stratification at SOL-00, which is normally only weakly or not at all stratified at that time of year.

Mixotrophic algae are those that can not only photosynthesize (utilize the sun's light to produce energy) but can also ingest and digest small food particulates such as bacteria. The high total coliform event may have allowed mixotrophic algae to flourish via provision of an excess of coliform bacteria as a food source during this time of year when they would normally be limited by obtaining energy only via synthesis. The weather and other factors may have also contributed to the high diversity during this reporting period.

Water Quality Trends in Sooke Lake Reservoir  
2012-2017

Figure 1. Water Level

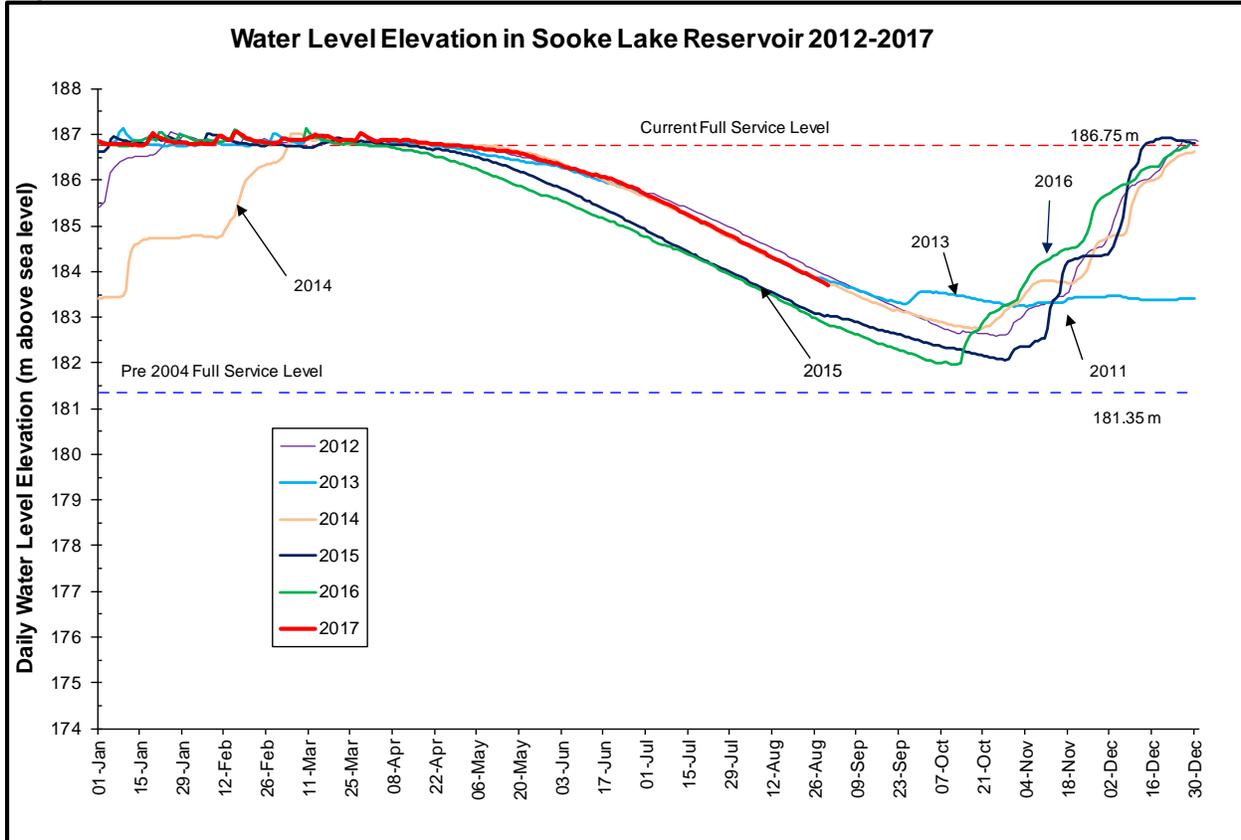


Figure 2. Water Temperature

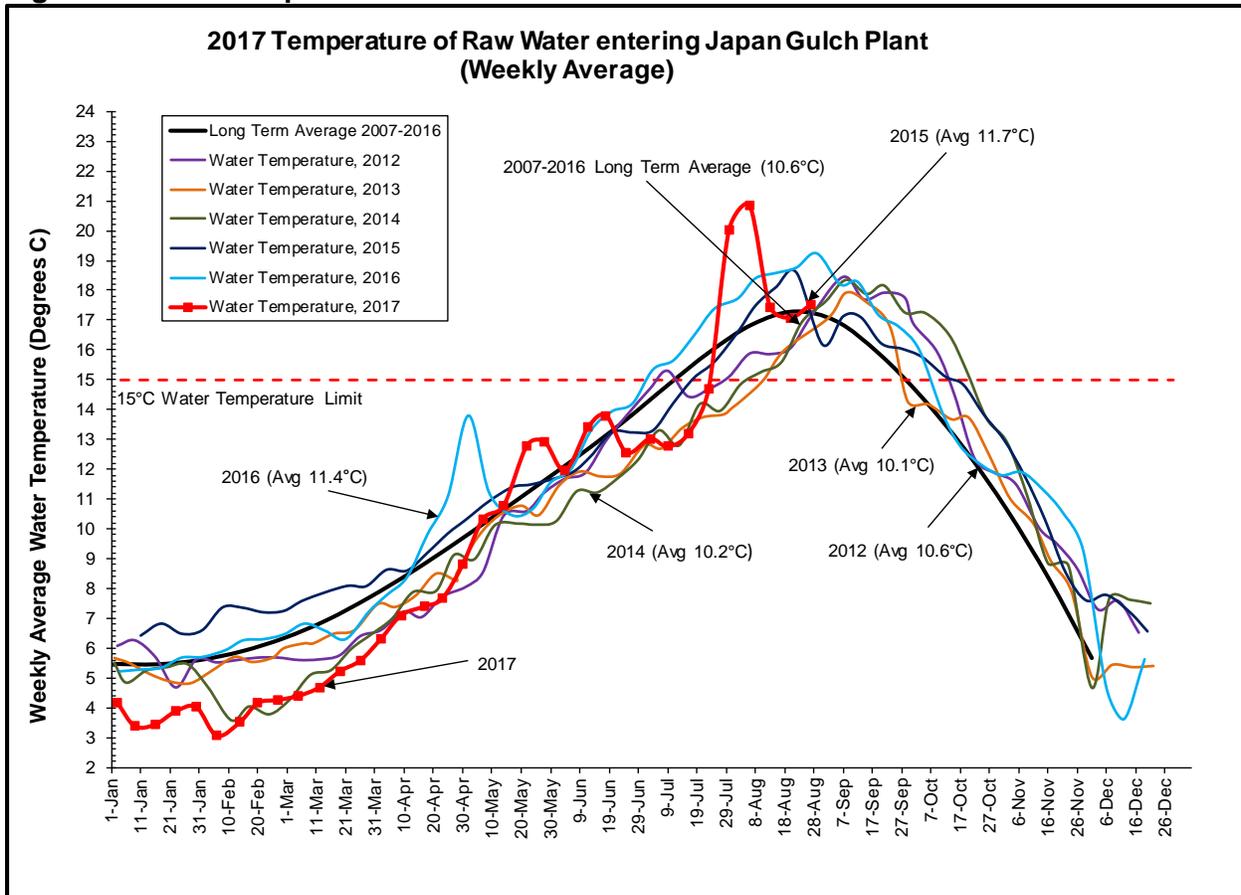


Figure 3. Turbidity

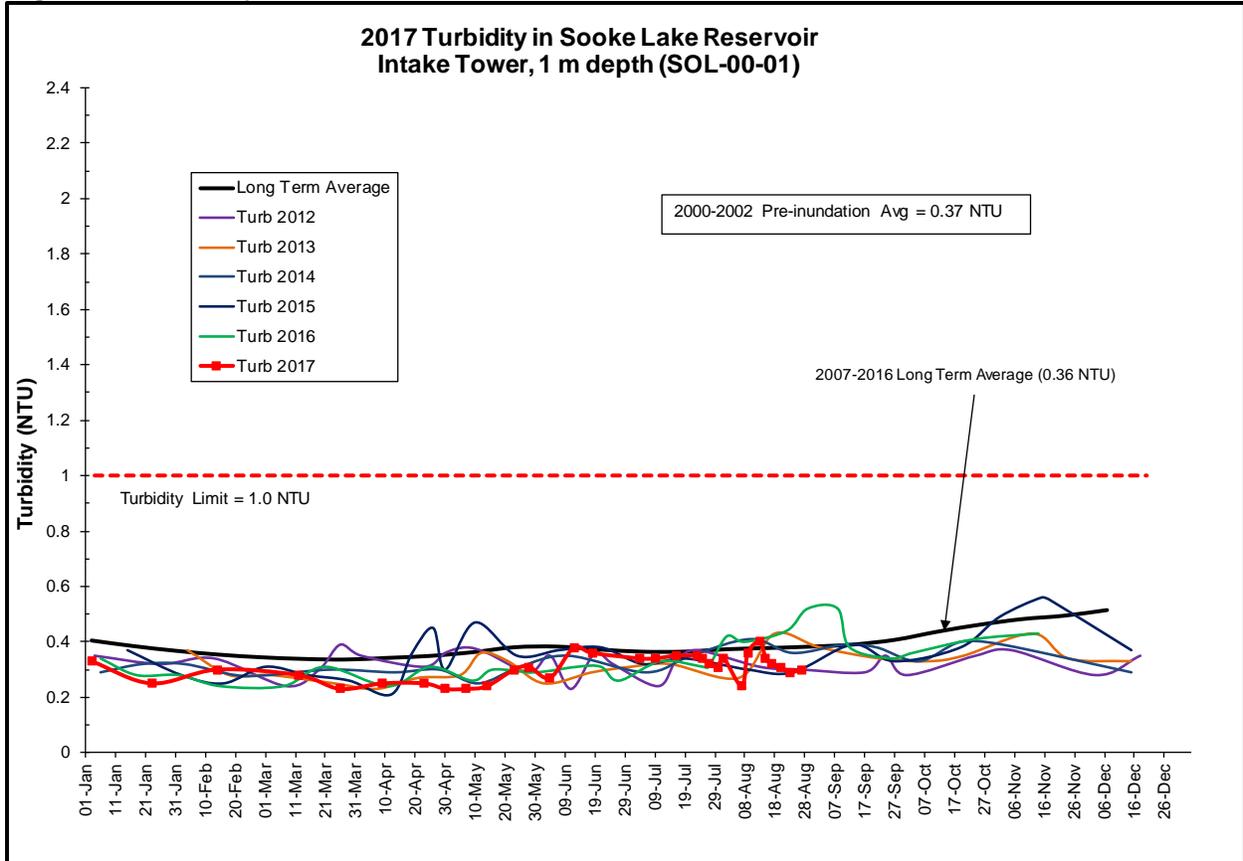


Figure 4. Transparency

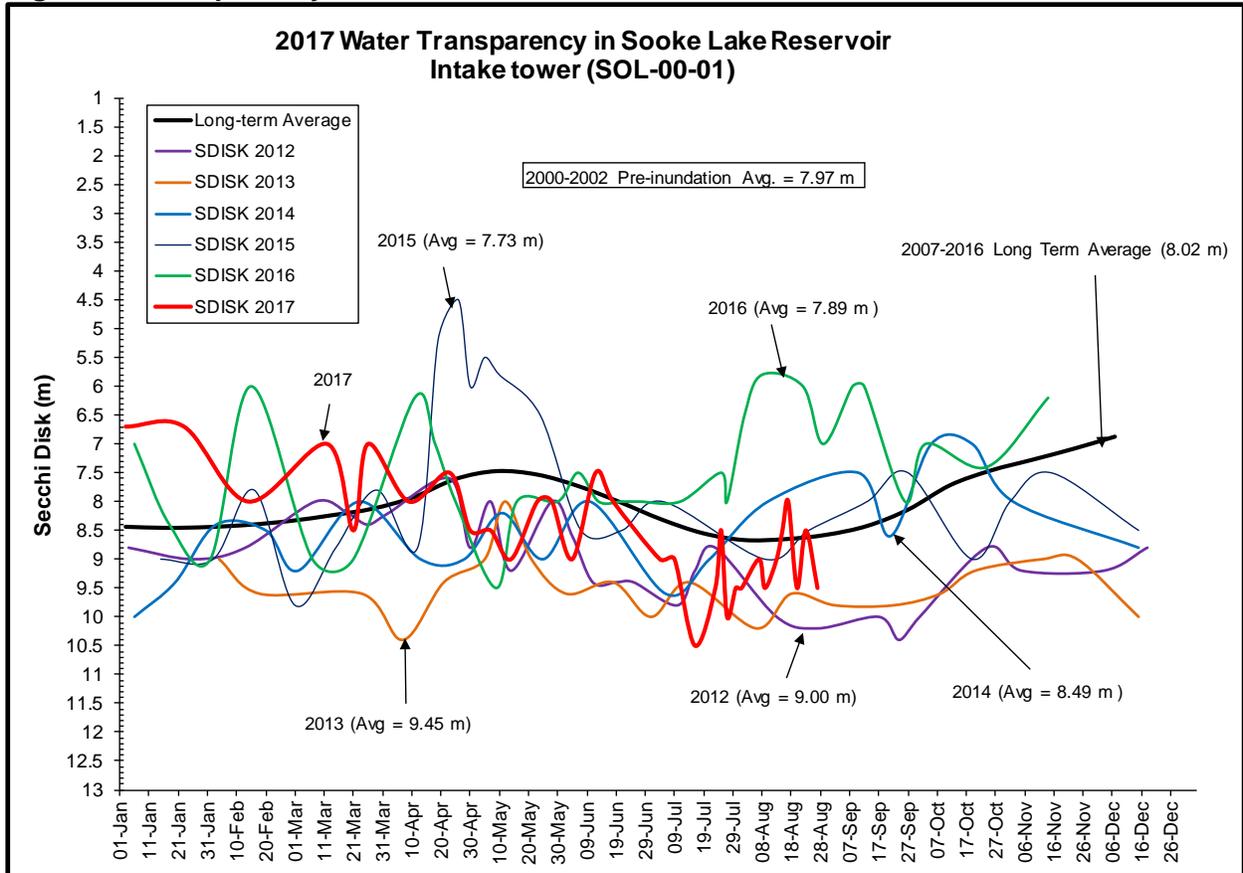


Figure 5. Total coliforms and *E. coli*

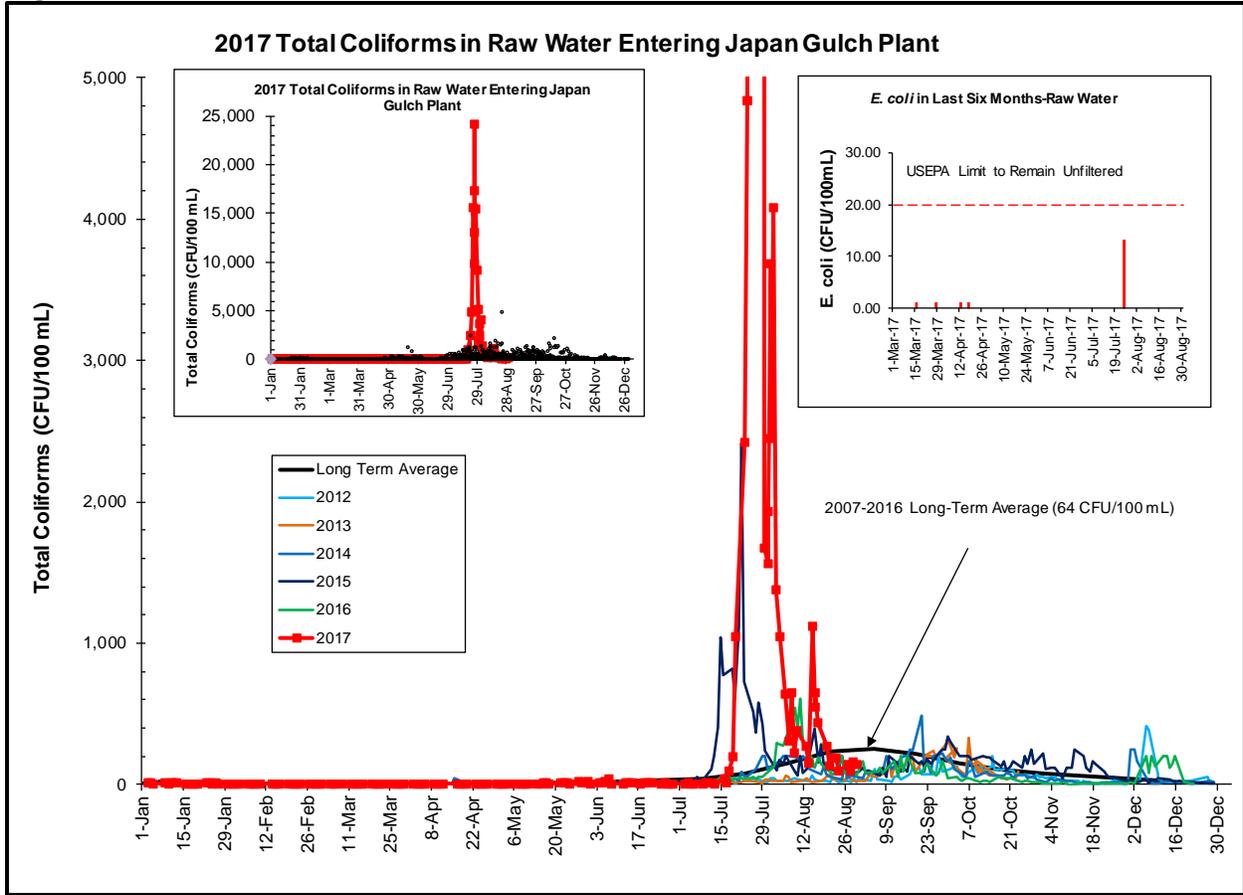


Figure 6. Phosphorus (South Basin)

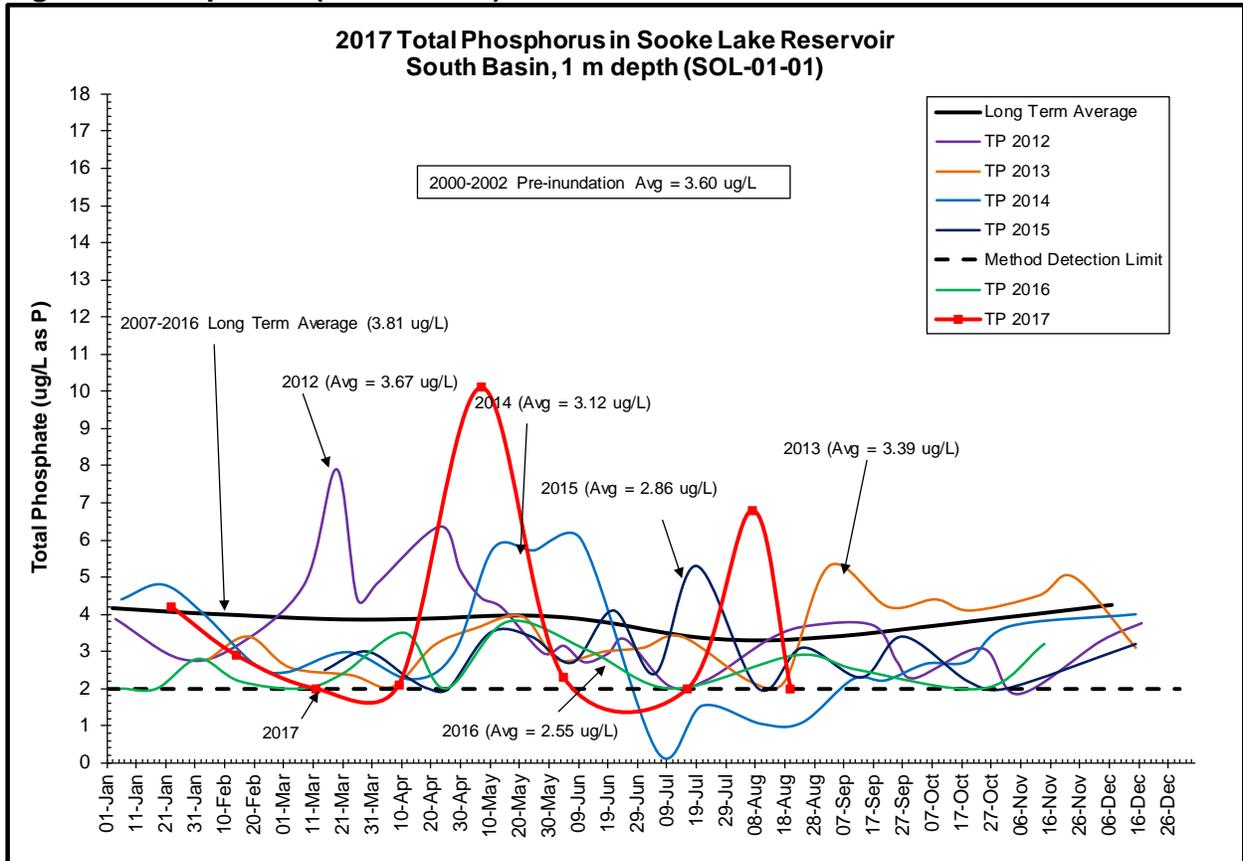


Figure 7. Phosphorus (North Basin)

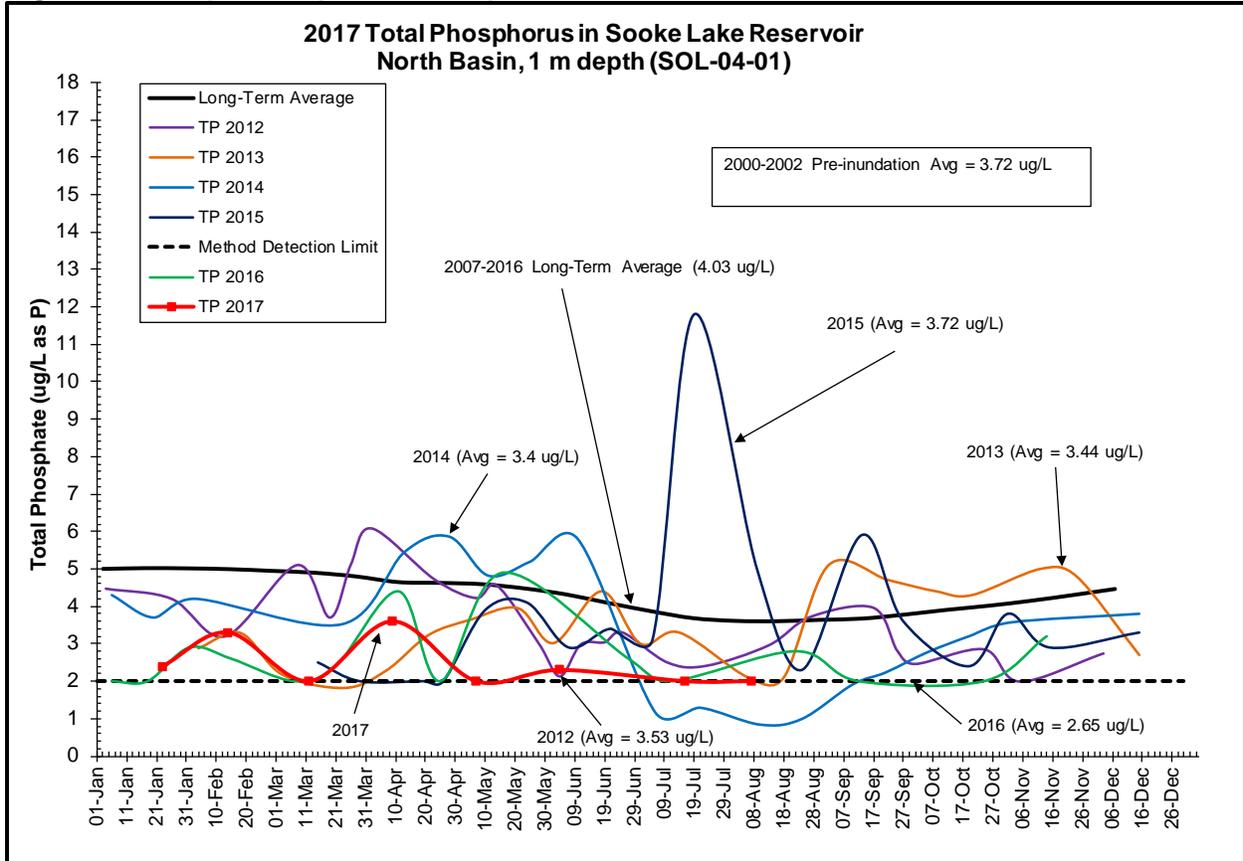


Figure 8. Nitrogen (South Basin)

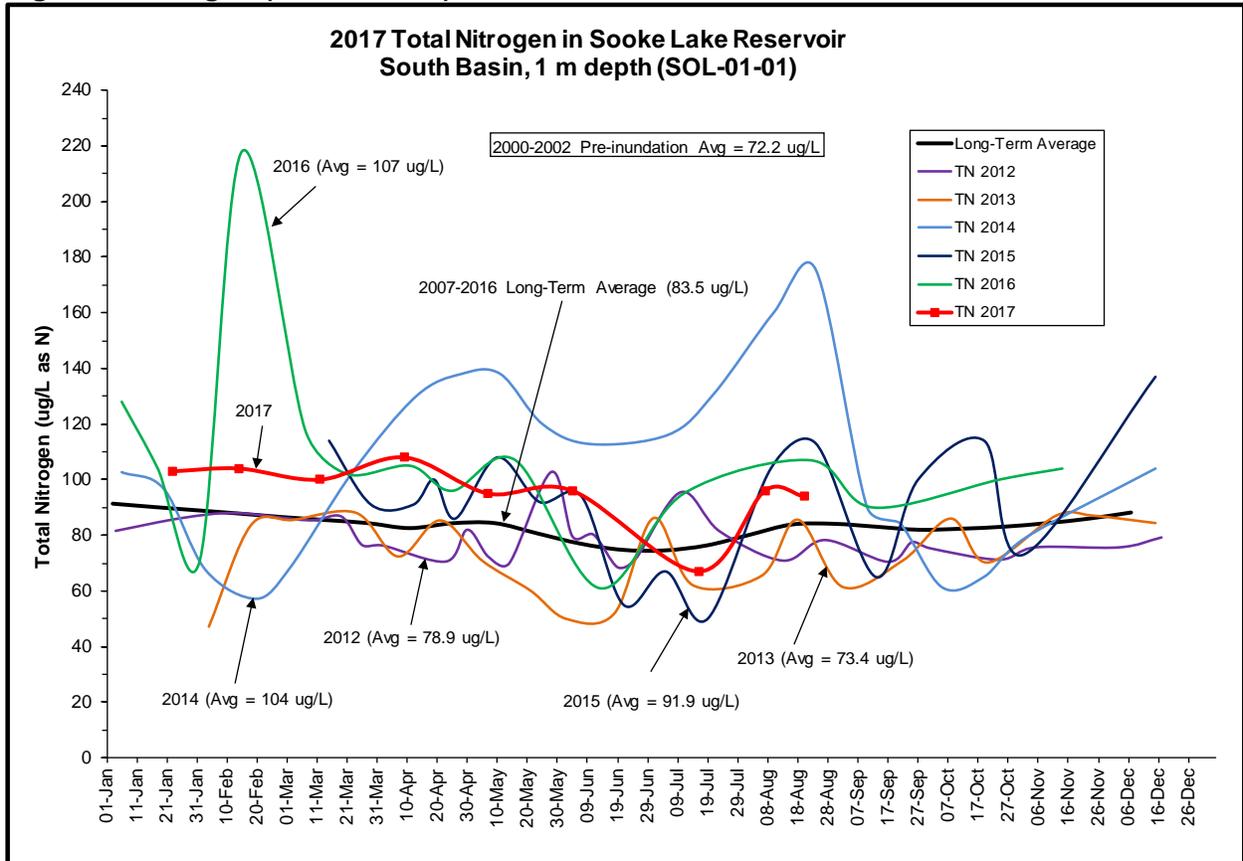


Figure 9. Nitrogen (North Basin)

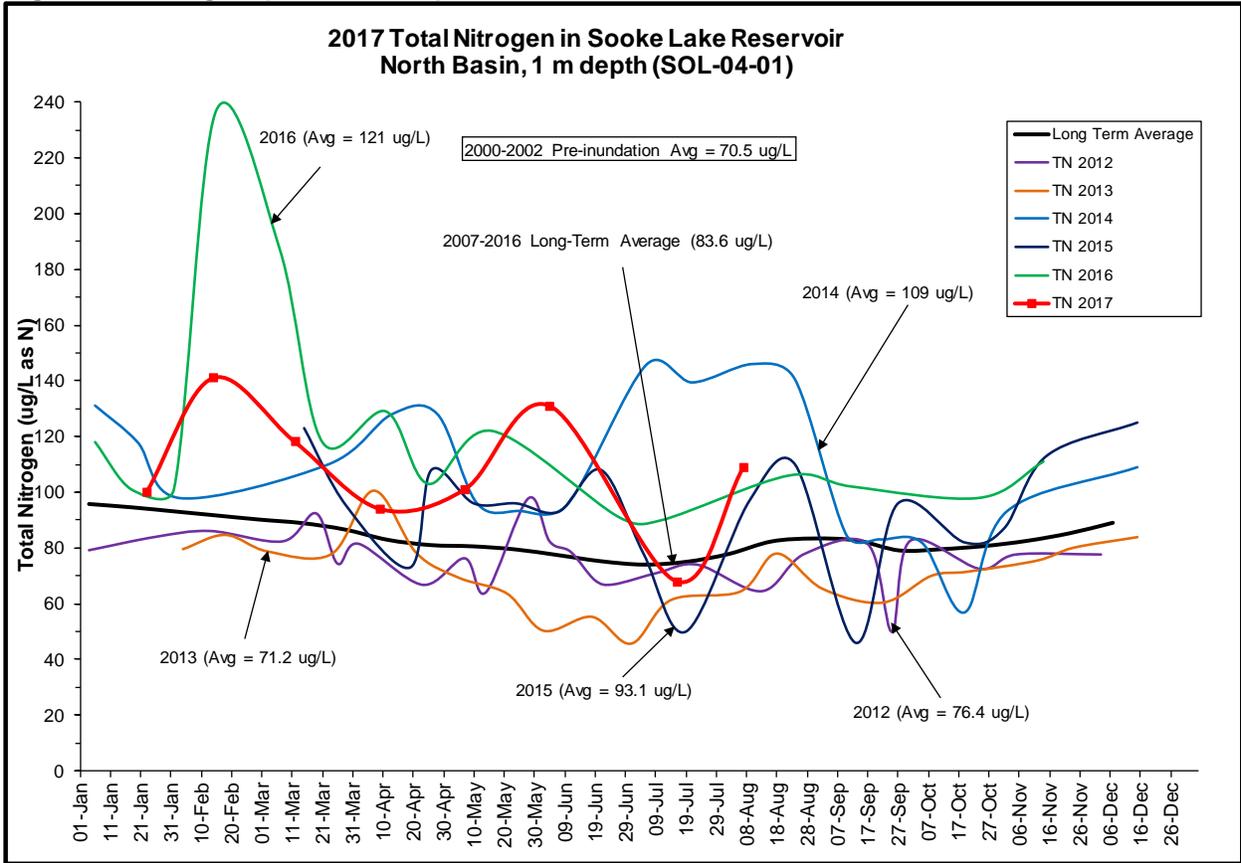


Figure 10. Chlorophyll (1 m)

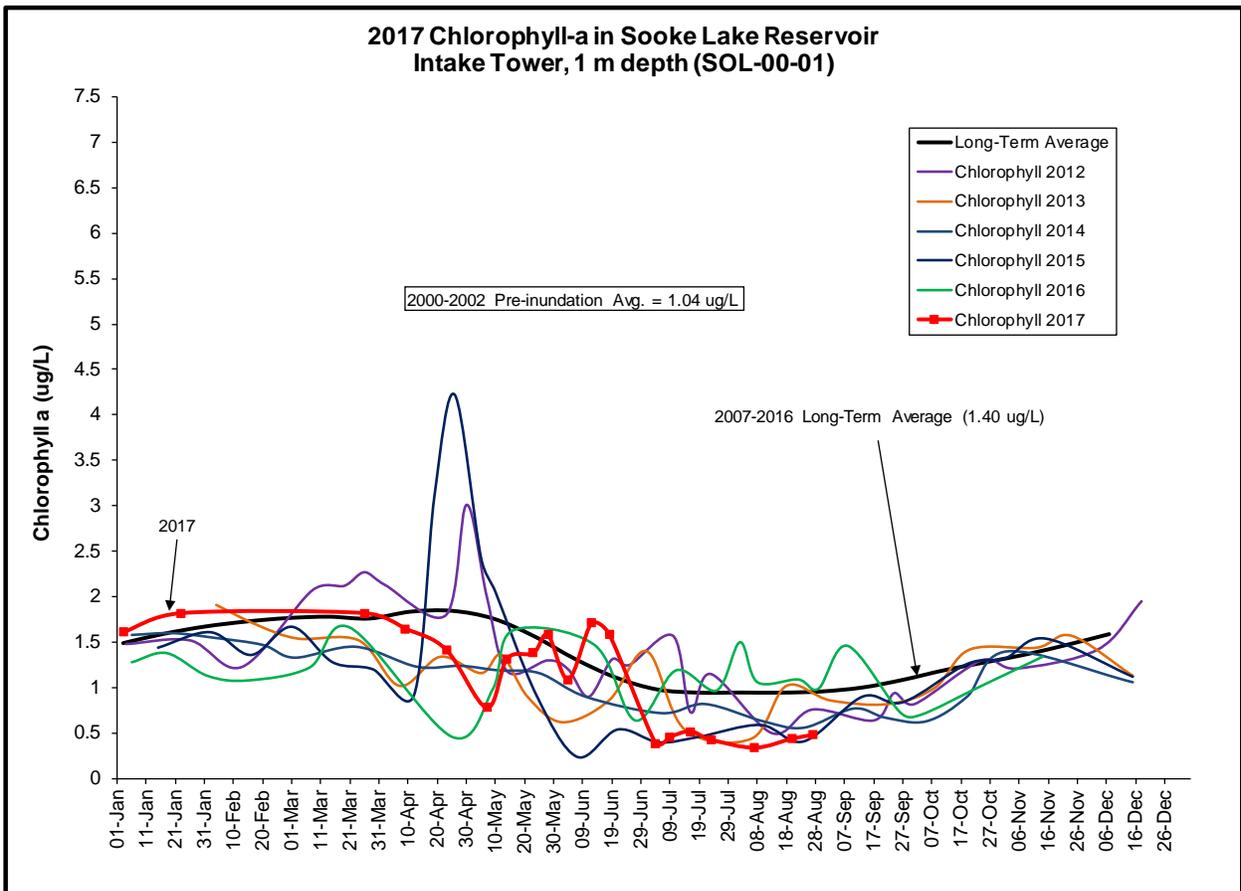


Figure 11. Chlorophyll (5 m)

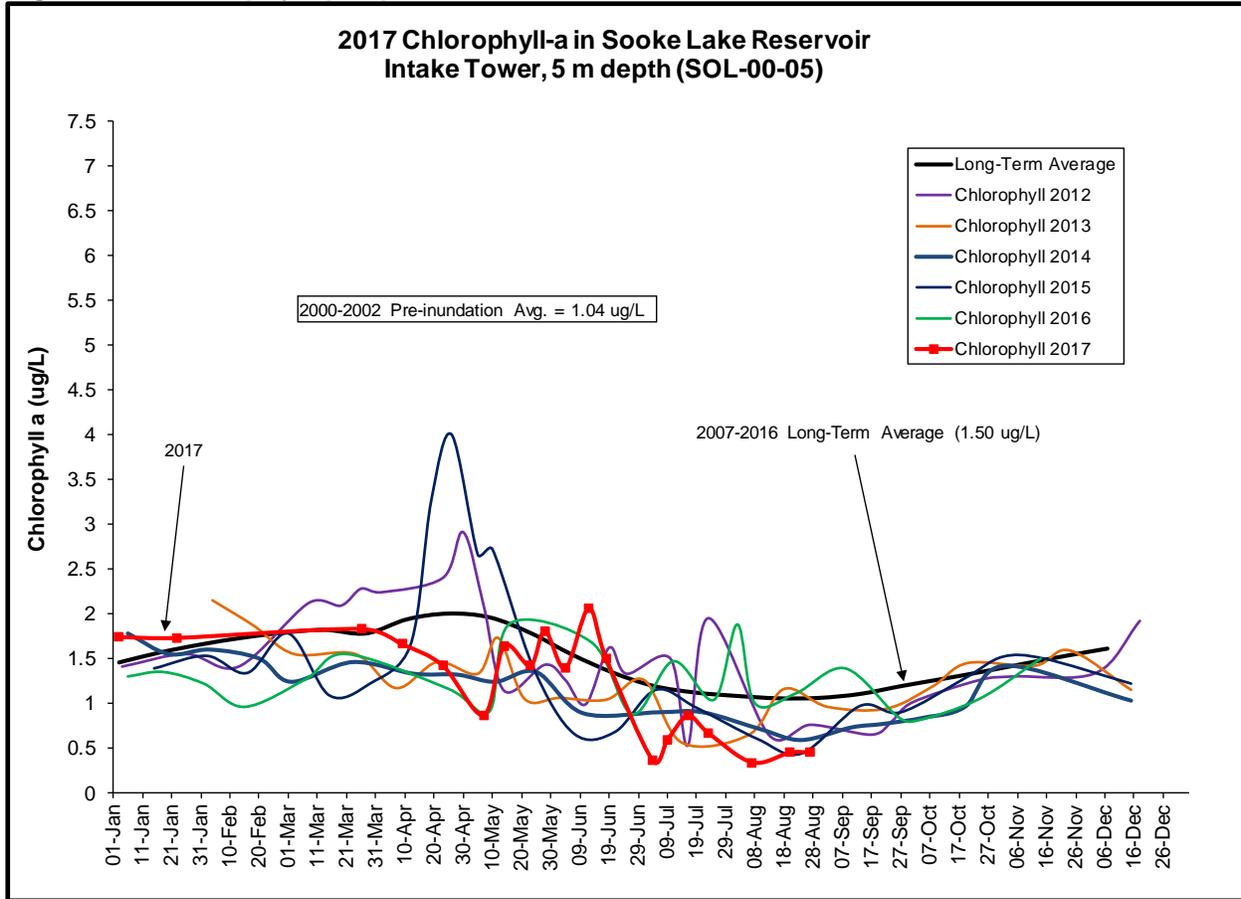


Figure 12. Chlorophyll (10 m)

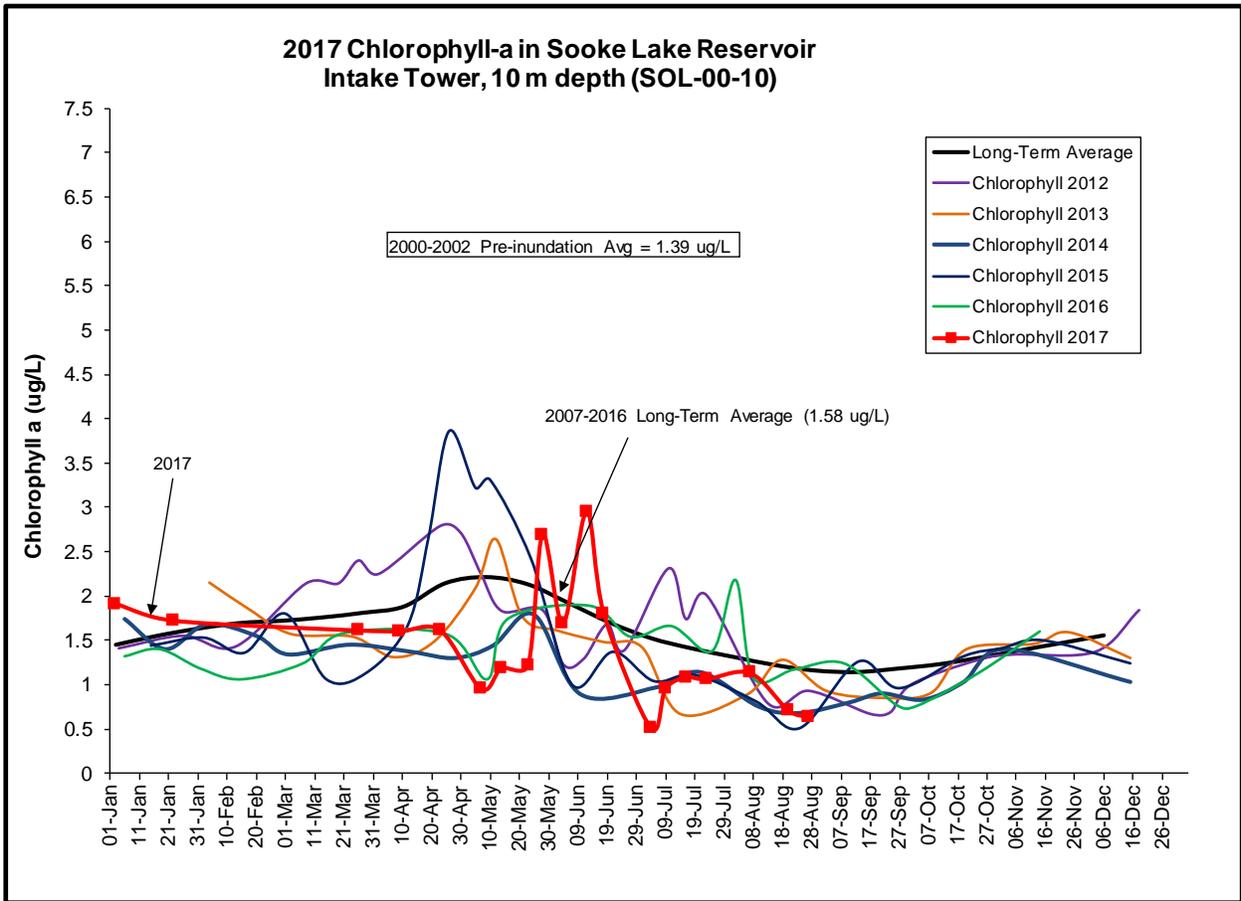


Figure 13. Total algae in South Basin (1m)

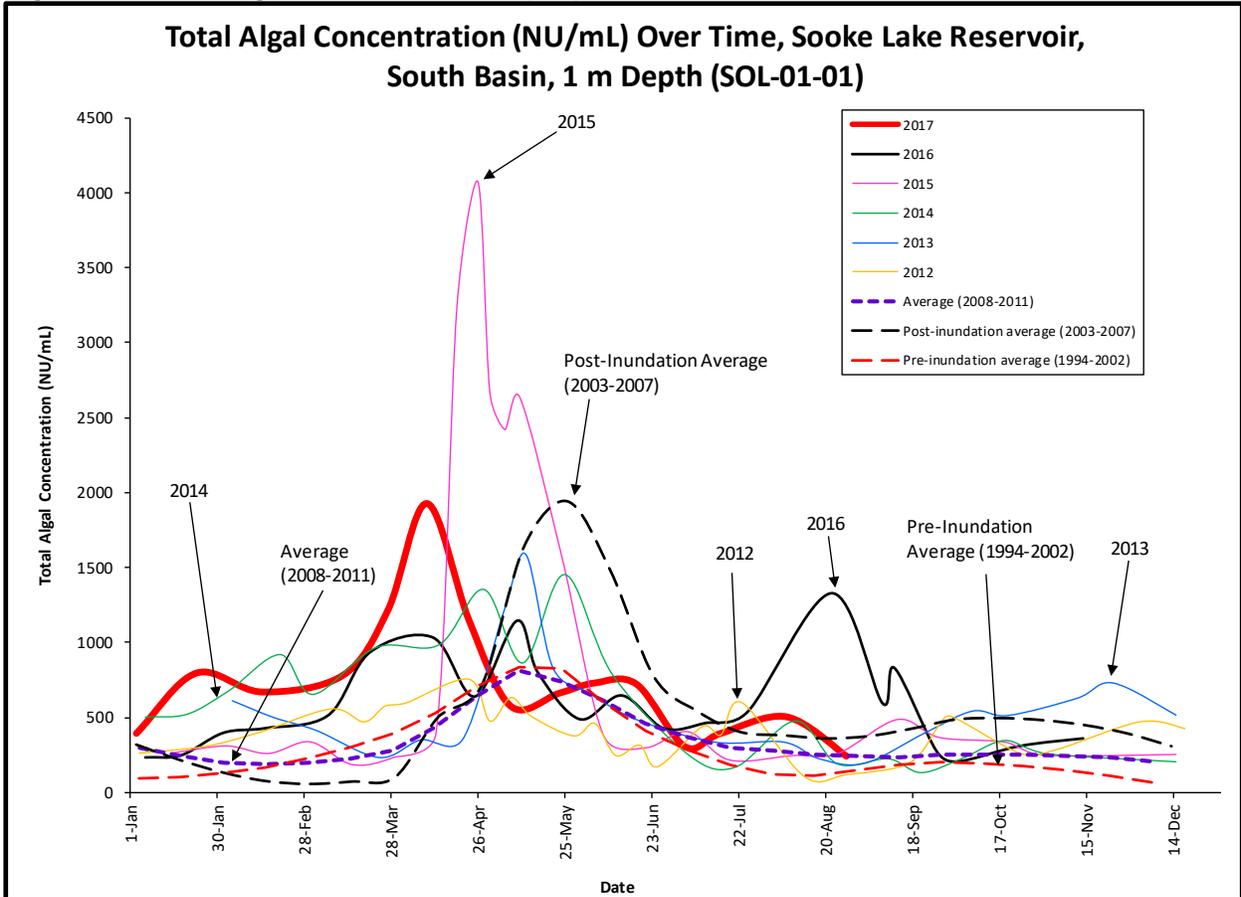


Figure 14. Total algae in North Basin (1m)

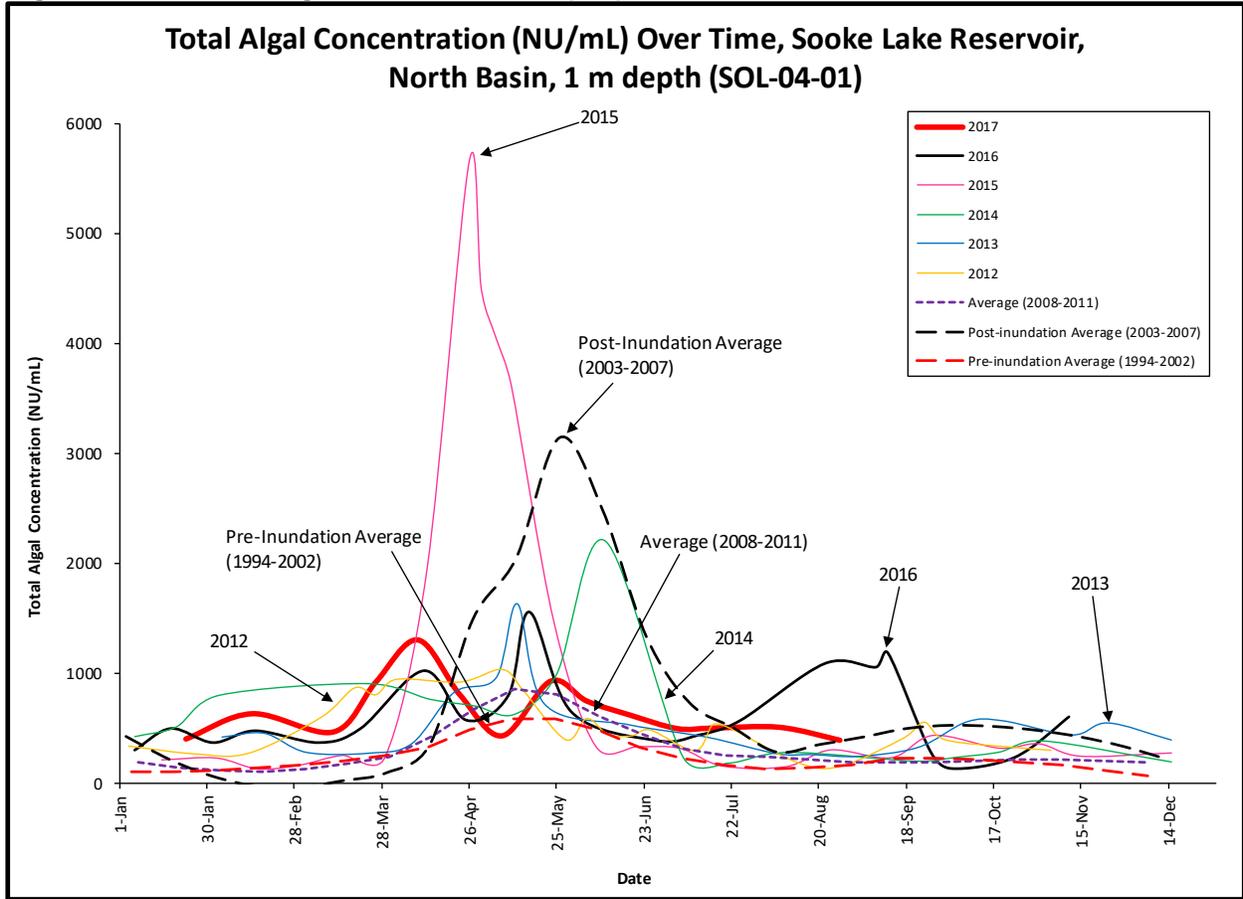
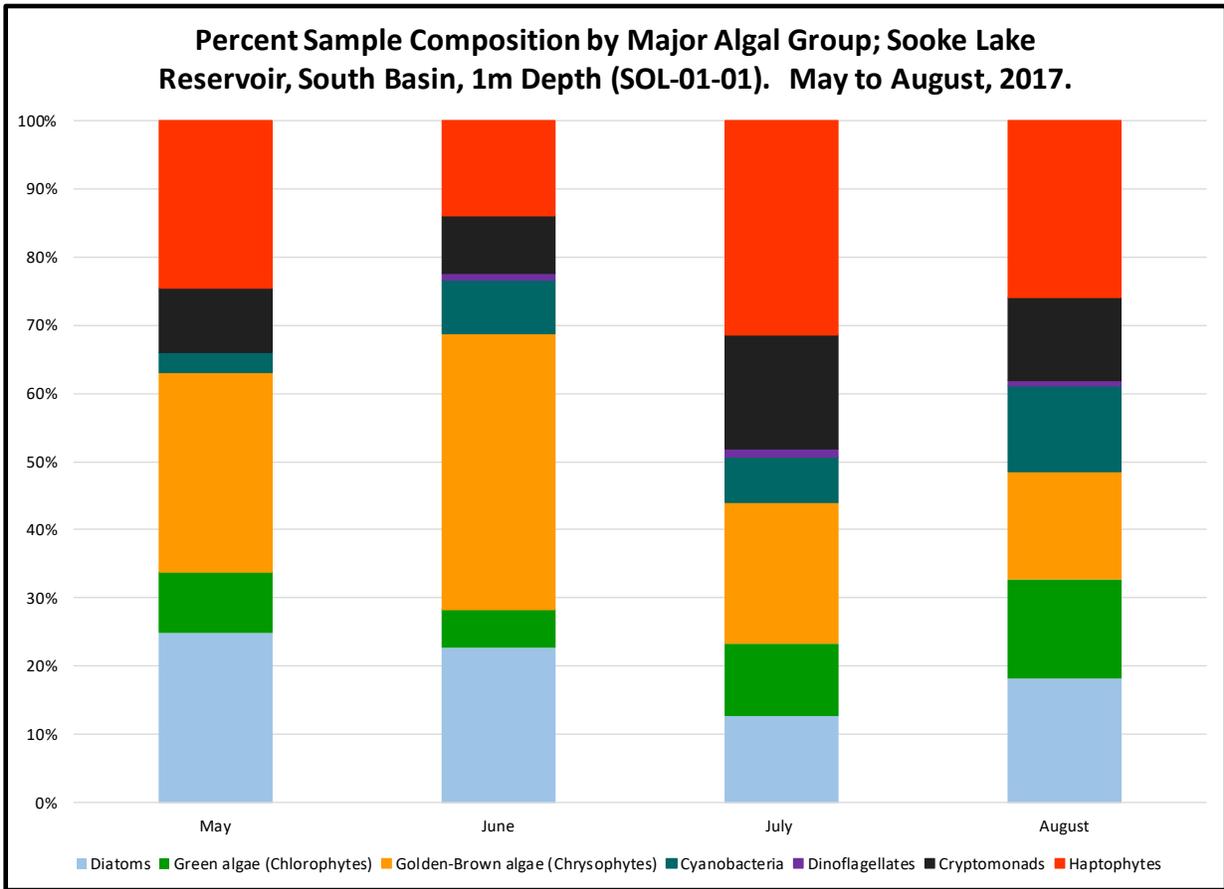
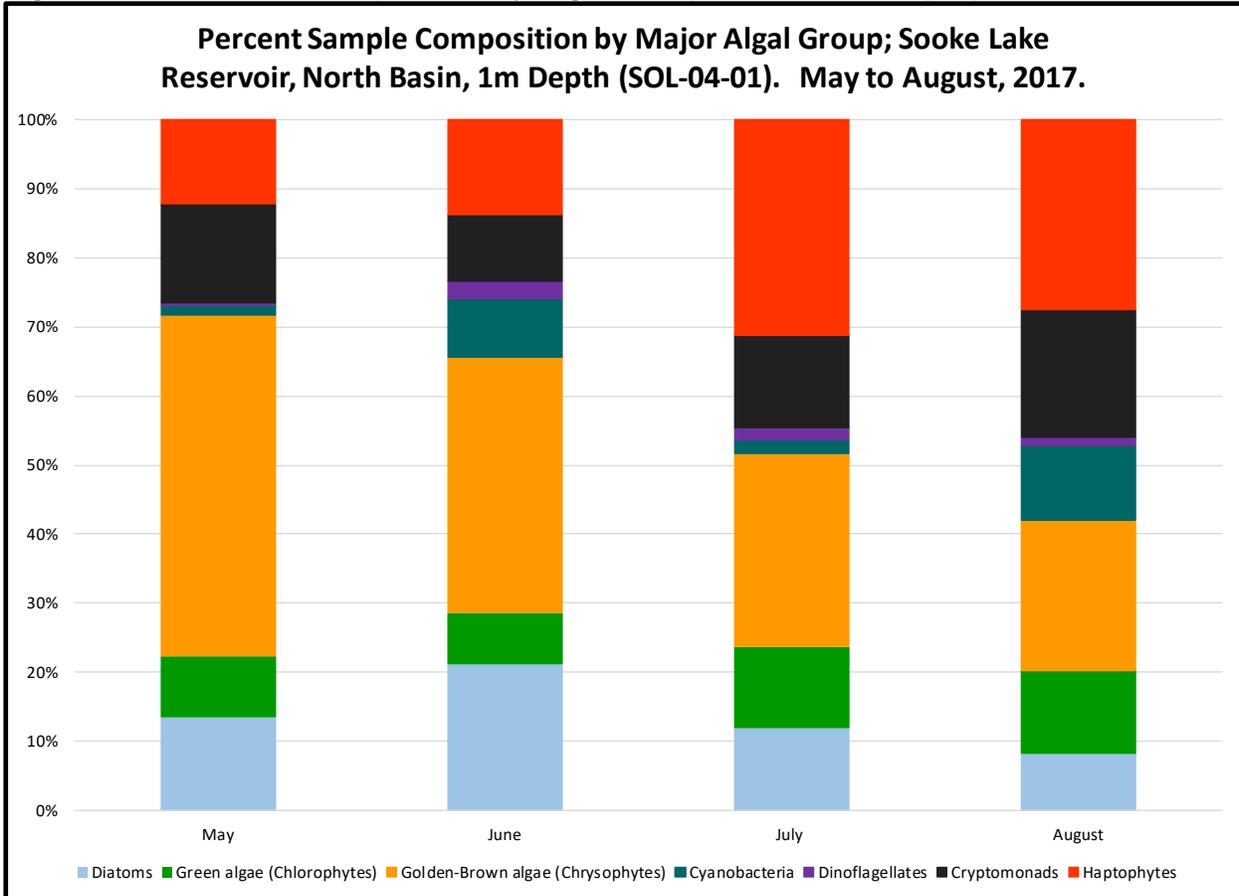


Figure 15. Percent Composition by Algal Group in South Basin (1m)



**Figure 16. Percent Composition by Algal Group in North Basin (1m)**



**Image A. Haptophyte alga: *Chrysochromulina parva***



## CAPITAL REGIONAL DISTRICT - INTEGRATED WATER SERVICES

### Water Watch

Issued October 10, 2017

#### Water Supply System Summary:

##### 1. Useable Volume in Storage:

Reservoir	October 31 5 Year Ave		October 30/16		October 8/17		% Existing Full Storage
	ML	MIG	ML	MIG	ML	MIG	
Sooke	65,945	14,508	68,750	15,125	64,817	14,260	69.9%
Goldstream	6,195	1,363	7,282	1,602	6,165	1,356	62.8%
Total	72,140	15,871	76,032	16,727	70,982	15,616	69.2%

##### 2. Average Daily Demand:

For the month of October	126.2 MLD	27.77 MIGD
For week ending October 08, 2017	126.0 MLD	27.72 MIGD
Max. day October 2017, to date:	139.5 MLD	30.70 MIGD

##### 3. Average 5 Year Daily Demand for October

Average (2012 - 2016)	110.1 MLD <sup>1</sup>	24.23 MIGD <sup>2</sup>
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<sup>1</sup>MLD = Million Litres Per Day      <sup>2</sup>MIGD = Million Imperial Gallons Per Day

##### 4. Rainfall October:

Average (1914 - 2016):	170.0 mm
Actual Rainfall to Date	11.5 (7% of monthly average)

##### 5. Rainfall: Sep 1- Oct 8

Average (1914 - 2016):	97.7 mm
2017	47.8 (49% of average)

##### 6. Water Conservation Action Required:

To avoid possible leaks this spring, now is the time to winterize your sprinkler system

Check our website at [www.crd.bc.ca/water](http://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

Deborah Walker  
Demand Management Coordinator

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

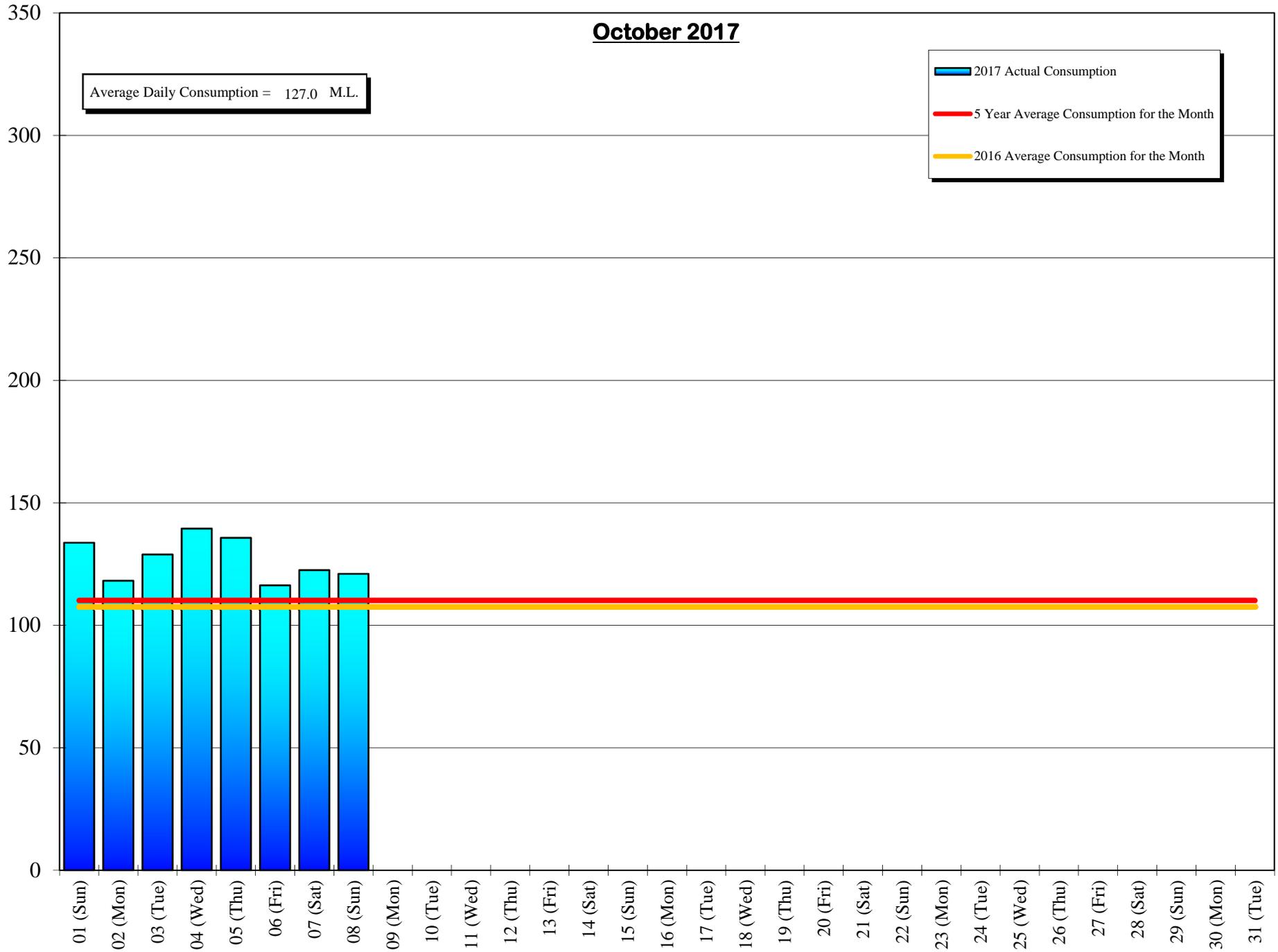
**October 2017**

Average Daily Consumption = 127.0 M.L.

Legend:

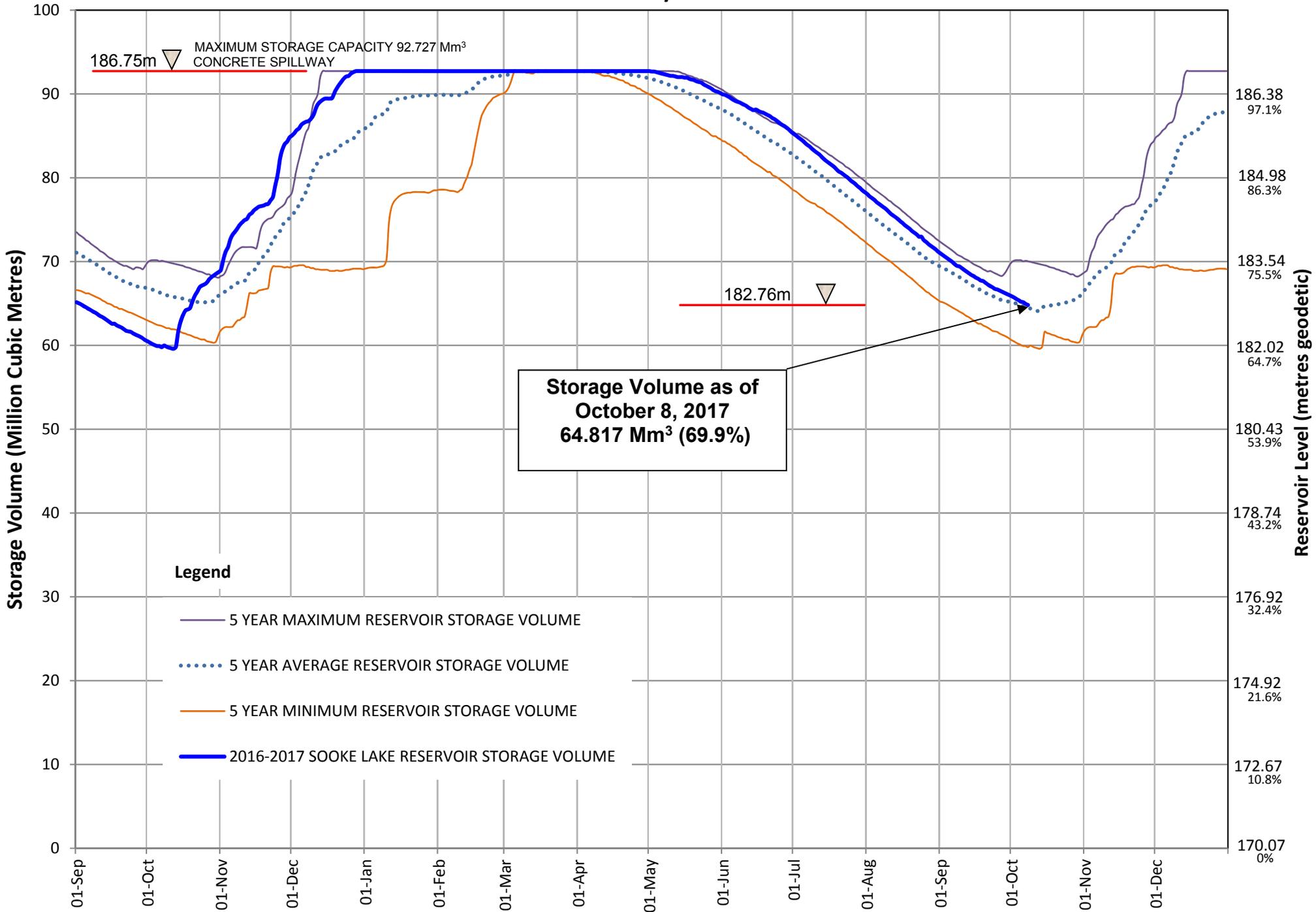
- 2017 Actual Consumption (Blue bars)
- 5 Year Average Consumption for the Month (Red line)
- 2016 Average Consumption for the Month (Yellow line)

Consumption (Million Litres)



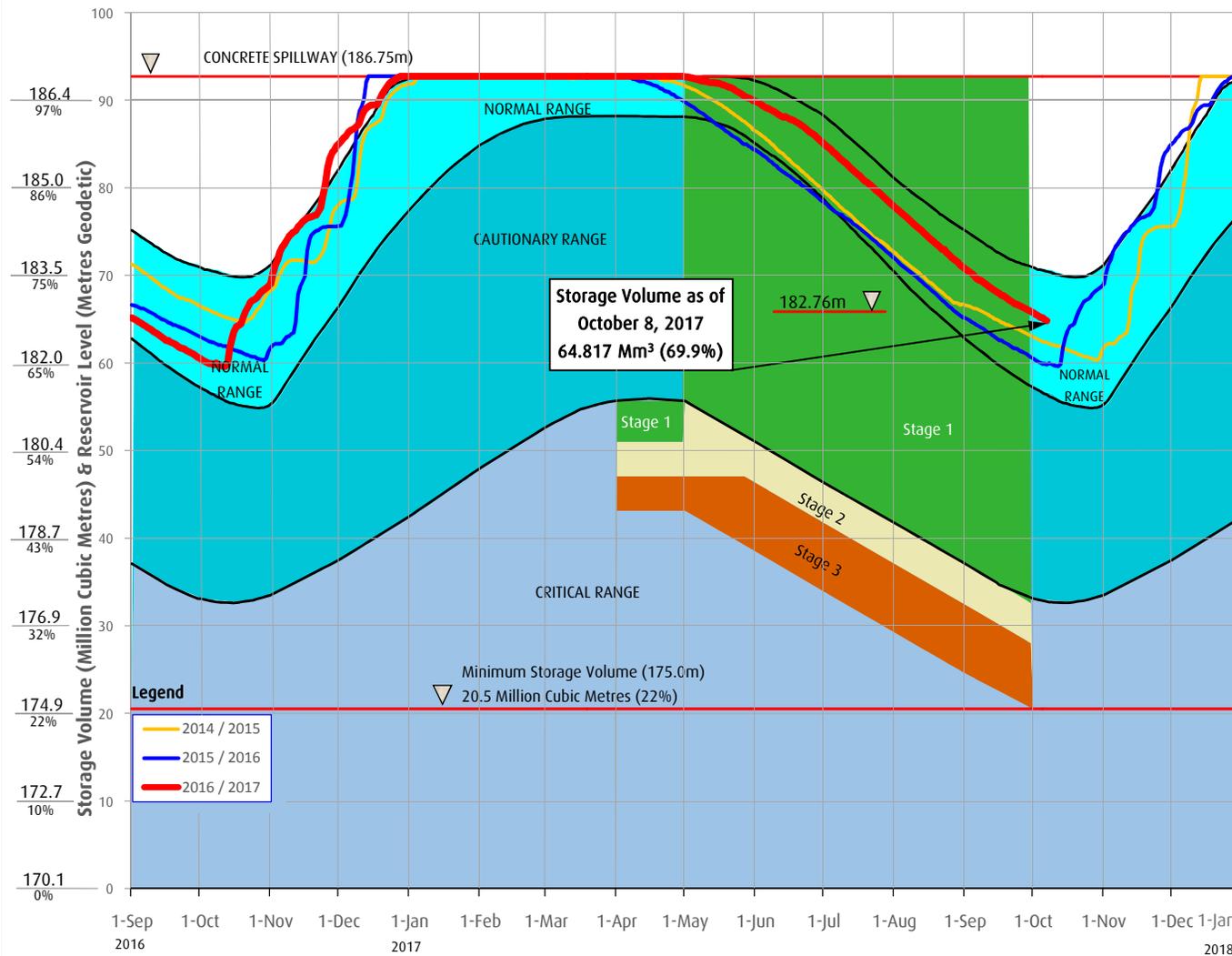
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# SOOKE LAKE RESERVOIR STORAGE SUMMARY 2016 / 2017



# Sooke Lake Reservoir Storage Level

## Water Supply Management Plan



## FAQs

### How are water restriction stages determined?

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

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

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

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

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

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

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

For more information, visit [www.crd.bc.ca/drinkingwater](http://www.crd.bc.ca/drinkingwater)

