



Making a difference...together

**JUAN DE FUCA WATER DISTRIBUTION COMMISSION**  
Notice of Meeting on **Tuesday, October 6, 2015 at 12:00 pm**  
Goldstream Conference Room, 2nd Floor, 479 Island Highway, Victoria, BC

B. Gramigna  
M. Hicks  
G. Baird

J. Rogers  
G. Logan  
L. Szpak

K. Pearson  
W. Sifert

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**AGENDA**

1. Approval of Agenda
2. Adoption of Minutes of September 1, 2015
3. Chair's Remarks
4. Presentations/Delegations
  - No one has registered to speak
5. Summary of Recommendations From Other Water Commissions
6. Juan de Fuca Water Distribution Service Development Cost Charge Program Update (Report #JWDC2015-15)
7. Water Service Failures – Proposed Annual Provisional Capital Program (Report #JWDC2015-13)
8. Five-Year Fire Flow Upgrade Program – 2015 (Year 4) Summary and Next Steps (Report #JWDC2015-14)
9. Extension of Contract No. 2014-920, Supply of Traffic Control Services (Report #JWDC2015-16)
10. Extension of Contract No. 2012-744, Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes (Report #JWDC2015-17)
11. Service Plans Review Process (Report #JWDC2015-18)
12. 2016 Capital and Operating Budget (Report #JWDC2015-19)
13. Water Watch
14. New Business
15. Adjournment

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



Making a difference...together

**MINUTES OF A MEETING OF THE JUAN DE FUCA WATER DISTRIBUTION COMMISSION**  
**Held Tuesday, September 1, 2015, Goldstream Conference Room, 479 Island Highway**

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**PRESENT:**       **Commissioners:** B. Gramigna, J. Rogers, M. Hicks, G. Logan, G. Baird, K. Pearson, L. Szpak, W. Sifert  
                              **Staff:** T. Robbins, M. Cowley, S. Mason, I. Sander, M. Montague (Recorder)

The meeting was called to order at 12:00 pm.

**1.       APPROVAL OF AGENDA**

The following items were added to the agenda:

- Verbal report on the Kemp Lake grant application;
- Millstream high pressure change status

**MOVED** by Commissioner Szpak and **SECONDED** by Commissioner Sifert,  
That the Juan de Fuca Water Distribution Commission approve the agenda as amended.

CARRIED

**2.       ADOPTION OF MINUTES OF JUNE 2, 2015**

**MOVED** by Commissioner Szpak and **SECONDED** by Commissioner Rogers,  
That the Juan de Fuca Water Distribution Commission adopt the minutes of June 2, 2015 as distributed.

CARRIED

**3.       CHAIR'S REMARKS**

The Chair introduced Malcolm Cowley, Senior Manager, Infrastructure Engineering, and welcomed him to the meeting. He noted that P. Sparanese had left the CRD at the end of August and M. Cowley was taking his place. T. Robbins will be overseeing the Infrastructure Operations division until a new Senior Manager is hired.

**4.       PRESENTATIONS/DELEGATIONS**

Mr. Greg Mortimer, a resident on Citadel Place in Victoria, made a presentation pertaining to the water usage for his home.

**MOVED** by Commissioner Hicks and **SECONDED** by Commissioner Sifert,  
That the Juan de Fuca Water Distribution Commission reimburse the Mortimers 50% of the water bill for #13-3650 Citadel Place, Victoria, BC for the period February 14, 2015 to April 10, 2015.

DEFEATED

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Hicks,  
That the Juan de Fuca Water Distribution Commission:

1. Direct staff to reimburse the Mortimers for the difference between their average water bill and the bill they received for the period February 14, 2015 to April 10, 2015; and
2. If, in future, the Mortimers receive a larger than normal water bill that is unexplainable by staff, the owner is to pay the full amount of the bill and deal directly with their strata council to resolve.

CARRIED

**5.       SUMMARY OF RECOMMENDATIONS FROM OTHER WATER COMMISSIONS**

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Szpak,  
That the Juan de Fuca Water Distribution Commission receive the staff report for information.

CARRIED

**6. JUAN DE FUCA WATER DISTRIBUTION COMMISSION RESERVOIR FALL PROTECTION – AWARD OF CONSTRUCTION CONTRACT 2015-969**

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Logan,  
That the Juan de Fuca Water Distribution Commission award the contract for the Reservoir Fall Protection Upgrades (Tender No. 2015-969) to Brunnell Construction Ltd. for the amount of \$138,434.00, including \$10,000 construction contingency, but excluding tax, of which the total cost is \$240,922.00, including contract contingency and provisional items A-P1 and A-P3. The award of the full contract is also subject to Saanich Peninsula Water Commission approval.

CARRIED

**7. (a) VERBAL UPDATE ON THE PRESSURE INCREASE TO THE MILLSTREAM VILLAGE AREA**

T. Robbins provided an update on the status of the project to date. He noted that the Commission approved the project at the meeting in June. There are 294 properties in the pressure zone and 281 have been contacted regarding the pressure increase. A follow up notice will be included in the next bill and staff will continue to try contacting those properties that have not been contacted.

**(b) VERBAL UPDATE ON EAGLE CREEK DEVELOPMENT SERVICING – HELMCKEN ROAD**

T. Robbins reported that, in order to service the Eagle Creek Development on Helmcken Road, a hot tap is required on both the No. 1 and No. 4 mains. This project will take place on Thursday, September 3. These mains also service the Victoria General Hospital and, although some risk is involved with this project, it is considered to be very low. CRD staff are working with View Royal, who will be establishing their EOC for the day. Island Health is also involved with the project.

Commissioner Szpak left the meeting.

**(c) VERBAL UPDATE ON THE KEMP LAKE GRANT APPLICATION**

A grant application was submitted to construct an extension to the Kemp Lake Water Improvement District and CRD has been notified that the application was unsuccessful. CRD staff did follow up with the Province, who indicated that they were concerned with Kemp Lake continuing to operate as an improvement district. This information has been communicated to Kemp Lake and they are now looking at other funding sources.

**8. WATER WATCH**

**MOVED** by Commissioner Logan and **SECONDED** by Commissioner Pearson,  
That the Juan de Fuca Water Distribution Commission receive the staff report for information.

CARRIED

**9. NEW BUSINESS**

There was no new business.

**10. ADJOURNMENT**

**MOVED** by Commissioner Rogers and **SECONDED** by Commissioner Sifert,  
That the meeting of the Juan de Fuca Water Distribution Commission be adjourned at 1:05 pm.

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Chair

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Secretary

**REGIONAL WATER SUPPLY COMMISSION**

**SUMMARY OF RECOMMENDATIONS MADE  
AT A MEETING HELD SEPTEMBER 16, 2015**

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Full reports can be reviewed at <https://www.crd.bc.ca/about/document-library/documents/committeedocuments/regionalwatersupplycommission/20150916>

**1. SUMMARY OF THE 2015 H2OPEN HOUSE – CELEBRATING 100 YEARS OF DRINKING WATER SUPPLY TO THE GREATER VICTORIA REGION**

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

CARRIED

**2. LEECH WATER SUPPLY AREA OPEN HOUSE RESULTS**

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

CARRIED

**3. UPDATE ON IMPLEMENTATION OF THE 2012 STRATEGIC PLAN FOR THE GREATER VICTORIA WATER SUPPLY SYSTEM**

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

CARRIED



**SAANICH PENINSULA WATER COMMISSION**

**SUMMARY OF RECOMMENDATIONS MADE  
AT A MEETING HELD SEPTEMBER 17, 2015**

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Full reports can be reviewed at <https://www.crd.bc.ca/about/document-library/documents/committeedocuments/saanichpeninsulawatercommission/20150917>

**1. SAANICH PENINSULA WATER SYSTEM RESERVOIR FALL PROTECTION -  
AWARD OF CONSTRUCTION CONTRACT 2015-969**

That the Saanich Peninsula Water Commission award the contract for the Reservoir Fall Protection Upgrades (Tender No. 2015-969) to Brunnell Construction Ltd. for the amount of \$102,488.00, of which the total cost is \$240,922.00, including contract contingency. The award of the full contract is also subject to Juan de Fuca Water Distribution Commission approval, which was received September 1, 2015.

CARRIED

**2. DEVELOPMENT COST CHARGE BYLAW REVIEW AND UPDATE**

That the Saanich Peninsula Water Commission receive the staff report for information.

CARRIED

**3. AGREEMENT BETWEEN THE CAPITAL REGIONAL DISTRICT AND THE TOWN OF  
SIDNEY – WATER SUPPLY MAIN OWNERSHIP TRANSFER POINT**

That the Saanich Peninsula Water Commission approve and authorize for execution an agreement between the Town of Sidney (“Sidney”) and the CRD to define the ownership transfer point of the Supply Main.

CARRIED

**SAANICH PENINSULA WASTEWATER COMMISSION**

**SUMMARY OF RECOMMENDATIONS MADE  
AT A MEETING HELD SEPTEMBER 17, 2015**

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Full reports can be reviewed at <https://www.crd.bc.ca/about/document-library/documents/committeedocuments/saanichpeninsulawastewatercommission/20150917>

**1. SAANICH PENINSULA WASTEWATER DEVELOPMENT COST CHARGES UPDATE**

That the Saanich Peninsula Wastewater Commission receive the staff report for information.

CARRIED

**2. SAANICH PENINSULA WASTEWATER TREATMENT – CURRENT SOLUTIONS AND CONTINGENCIES AND FUTURE OPTIONS FOR SLUDGE DISPOSAL, BIOSOLIDS PRODUCTION AND USE AND POSSIBLE ENERGY PRODUCTION ALTERNATIVES**

That the Saanich Peninsula Wastewater Commission receive the staff report for information.

CARRIED

**3. RENEWAL OF WASTEWATER SERVICE AGREEMENT WITH THE INSTITUTE OF OCEAN SCIENCES, PAUQUACHIN FIRST NATION AND TSEYCUM FIRST NATION**

That the Saanich Peninsula Wastewater Commission receive the staff report for information.

CARRIED

**REPORT TO THE JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT      JUAN DE FUCA WATER DISTRIBUTION SERVICE DEVELOPMENT COST  
CHARGE PROGRAM UPDATE**

**ISSUE**

A comprehensive review and update of the Juan de Fuca Water Distribution Service Development Cost Charge (DCC) program and bylaw is planned, to identify growth related infrastructure requirements and financial implications.

**BACKGROUND**

Juan de Fuca Water Distribution Service (JDFWDS) Development Cost Charges were introduced in 1999. Subsequent program reviews and updates were completed in 2003, 2007 and 2011, which considered growth projections in each of the participating service areas, as well as Official Community Plan (OCP) amendments and zoning changes, and the longer term impact on water distribution infrastructure capacity. As presented in the 2015 JDFWDS budget, a comprehensive DCC program update was planned in 2016, with a budget of \$150,000. A \$10,000 budget was also approved for 2015 to start preparing information for the review.

CRD staff have recently received a request from the City of Langford (Langford) to advance the planned 2016 DCC review and update. Based on recent communication with Langford staff, the CRD is anticipating a request to significantly expand the JDFWDS to provide water service in the Sooke Road/Awsworth Road/West Shore Parkway extension area, to service a proposed light industrial park and other adjacent development lands that will be provided access with the completion of the Parkway extension. This type and scale of development was not considered in this area under the current DCC plan. Because of the location and scope of these proposed projects, and other potential land use changes in the participating municipalities, it is expected that new water system improvements will be required to support development and growth related capacity requirements. To ensure the planned DCC review and update is completed prior to finalizing potentially significant upcoming water servicing decisions, it is proposed to begin the update this year.

**ALTERNATIVES**

Alternative 1 - That the Juan de Fuca Water Distribution Commission direct staff to undertake the DCC review and update beginning in 2015, utilizing the approved 2015 DCC reserve funding in the amount of \$10,000 and the planned 2016 DCC reserve funding up to \$150,000, to expedite the completion of the update.

Alternative 2 - That the Juan de Fuca Water Distribution Commission direct staff to undertake the DCC review and update in 2016 as planned.

**IMPLICATIONS**

Alternative 1 – There will be no change to the current DCC plan or rates until the review and update is complete, projects and rates are confirmed and, if necessary, the DCC Bylaw is amended accordingly. Advancing the review and update work will not have any impact on the retail water rate, as the review and update will be fully funded from the DCC reserve fund, which is funded entirely from developer contributions.

Alternative 2 - If the review and update does not start until 2016, the recommendations from the review would not be determined until late in the year, potentially resulting in a delay in development water servicing decisions impacted by DCCs.

**CONCLUSION**

A comprehensive review and update of the Juan de Fuca Water Distribution Service DCC program and bylaw was planned for 2016. Advancing the start of the project to 2015, utilizing available DCC reserve funds, will allow the study recommendations to be implemented earlier in 2016, to inform anticipated important development water servicing decisions.

**RECOMMENDATION**

That the Juan de Fuca Water Distribution Commission direct staff to undertake the DCC review and update beginning in 2015, utilizing the approved 2015 DCC reserve funding in the amount of \$10,000 and the planned 2016 DCC reserve funding up to \$150,000, to expedite the completion of the update.



Ted Robbins, B.Sc., C.Tech.  
General Manager, Integrated Water Services

TR:mm

**REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

**SUBJECT    WATER SERVICE FAILURES – PROPOSED ANNUAL PROVISIONAL CAPITAL PROGRAM**

**ISSUE**

To provide an update on water service failures, the impacts they cause, and a proposed annual provisional capital program to repair and replace water services in order to reduce unplanned operating expenses and service impacts.

**BACKGROUND**

The Juan de Fuca Water Distribution System service area is approaching 22,000 service connections, the majority of which are residential services with small diameter (½ to ¾ inch) water service piping. As in most water distribution systems, services can fail in a number of ways, which then, for the Capital Regional District (CRD) systems, requires a response by the operating staff to troubleshoot, repair or replace. A typical detail or illustration of a service connection is included in Appendix A. The typical causes of service failures experienced by the CRD operations staff are noted in Appendix B.

Water service leaks or complete failures are identified by a variety of sources including the customers, the public, and CRD staff. The CRD is responsible for leak repairs that occur within a road right of way between the water main and the property line and the customer is responsible for those on private property. When a leak is reported, the current practice is for CRD operations staff to respond to the site, troubleshoot the problem, and then implement resources as required to resolve the leak. This may involve anything from one crew with simple tools and materials to resolve the issue, to full excavation with traffic control and surface restoration, depending on the extent of the failure and the location of the service and distribution main.

The number of services repaired per year is trending upwards as the system ages. The following table summarizes how many leaks have been repaired between 2012 and 2015 (to date) with the associated costs.

Table 1 – Water Service Leaks per year and expenditures

Year	Leak related work orders	Expenditure / Notes
2012	289	\$130K, March to December 2012
2013	321	\$193K
2014	385	\$267K
2015	375	\$218K, to September 24, 2015

There are many impacts that can occur when a water service leaks ranging from service interruption, traffic disruption, property damage, and the cost of the repair itself. A more complete description of the potential impacts of water service leaks are noted in Appendix C.

Therefore, a provisional capital program is being proposed beginning in 2016 to specifically fund the water service repair and replacement work, similar to the annual water main pipe replacement work. Eliminating the unbudgeted water service repair costs from the operating budget will help to stabilize the operating budget and prevent potential budget overruns related to service repairs. Over time, repair costs are expected to be reduced by proactively replacing services as part of an annual provisional capital program and including replacement of water service lines as part of the on-going annual main replacement program.

## **ALTERNATIVES**

### Alternative 1

That the Juan de Fuca Water Distribution Commission include \$300,000 in the 2016 capital budget as an annual provisional item for a Water Service Repair and Replacement Program.

### Alternative 2

That the Juan de Fuca Water Distribution Commission request CRD staff to report to back at a future meeting with further information.

## **IMPLICATIONS**

### Alternative 1

By funding the Water Service Repair and Replacement as a capital program, similar to the successful water main replacement program, water services in the problem areas can be replaced proactively; when a leak or failure occurs, full service replacements between the main and meter can be undertaken rather than spot repairs; replacement costs can be appropriately capitalized rather than funded through the operating budget. Furthermore, proactively completing service replacements as part of a capital program is expected to result in lower unit rates/costs and fewer service impacts to customers.

### Alternative 2

There is no specific financial implication for the Juan de Fuca Water Distribution Commission by requesting the CRD to report back at a future meeting with more information.


## **CONCLUSION**

In conclusion, water service failures are occurring at an increasing rate, and the unplanned work to repairs such leaks is currently expended from the operating budget. Emergency service leak repairs are costly and there is a benefit to proactively replace water services on a 30 to 40 year cycle to prevent the impacts of leaks.

An annual provisional capital program is proposed to firstly, fund any water service leak repairs (versus the operating budget) and secondly, to fund proactive water service replacements as the budget allows.


**RECOMMENDATION**

That the Juan de Fuca Water Distribution Commission include \$300,000 in the 2016 capital budget as an annual provisional item for a Water Service Repair and Replacement Program.



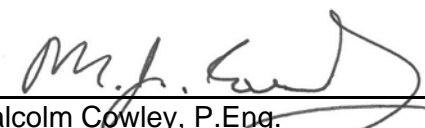
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Scott Mason, B.Sc., P.Eng.  
Manager, Water Engineering and Planning  
Infrastructure Engineering Division



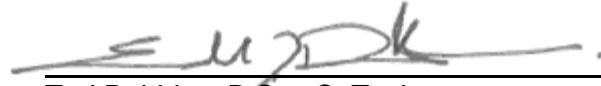
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Todd Scaber  
Manager, Water System Operations  
Infrastructure Operations Division



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Malcolm Cowley, P.Eng.  
Acting Senior Manager, Infrastructure  
Engineering  
Concurrence



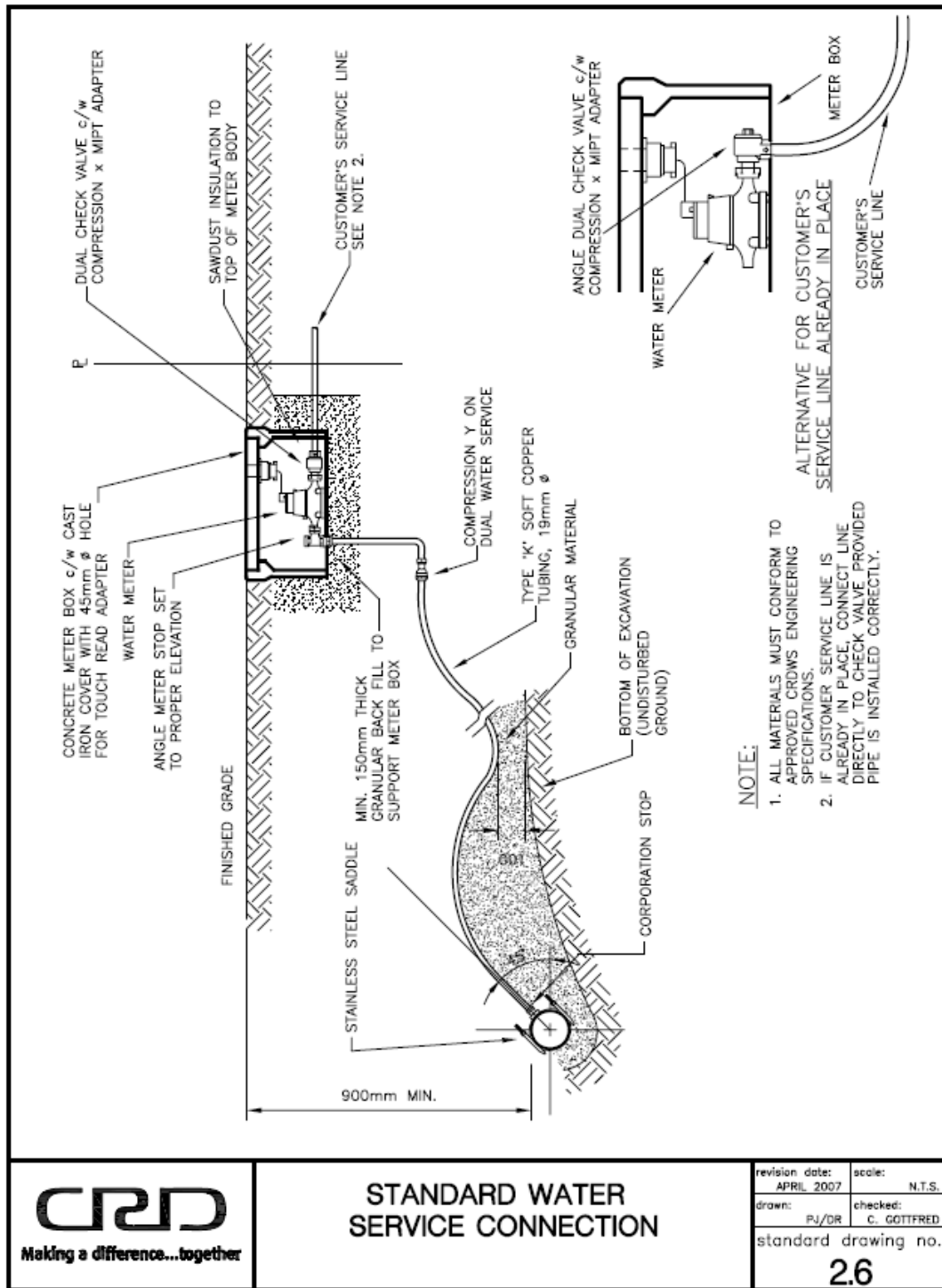
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Ted Robbins, B.Sc., C. Tech  
General Manager, Integrated Water  
Services  
Concurrence

SM/TS/TR:mm

Attachments: 3

Appendix A – Sample “Standard Water Service Connection”





Appendix B – Typical Causes of Water Service Failures

1. Corrosion of the service pipe material – most service pipes consist of copper material which has good corrosion resistance but under certain circumstances corrosion can be advanced resulting in pin hole leaks. Typically, corrosion of the pipe requires the entire service to be replaced from the water main in the street to the water meter at the property line. Dissimilar metals can advance corrosion.

Photo 1- Copper pipe with pin-holes and corroding galvanized metal pipe



2. Physical damage and frost damage can result in leaking pipes. This work requires excavation, labour, materials, and in most cases surface restoration.
3. Fittings – a variety of fitting materials have been used on the water services over the years. Flared compression fittings and soldered copper fittings are problematic and fitting have been known to crack. Repairs are typically localized at the water main, or at the customer water meter. Often leaks are discovered on the downstream side of the water meter which causes the customer to receive a higher than expected water bill and in some cases this results in a request for a leak adjustment.

Photo 2 – variety of damaged fittings



Photo 3 – Damaged fittings



4. Meter “Bottoms” – The design of the meters that are over 15 years old have the “bottoms” which are plastic and split or break over time.
5. Tree roots and ground movement – Many of the old meter boxes have been infiltrated and in time the copper becomes broken due to roots growing around the meter.

Photo 4 – Water Service Box surrounded by tree roots



Appendix C - Summary of Water Service Leak Implications:

1. Interruption of service to the customer – Depending on the severity of a failure, a customer may experience no loss of service, to reduced flow and pressure, to complete loss of service until a repair is completed.
2. Damage due to failure – Small leaks may not be noticeable, but a major service leak may result in property damage either on private property or within a municipal road right of way, and may have the potential to cause significant public safety issues.
3. Loss of produced water – Although it has not been specifically quantified for the JDF water service, leaks in the distribution system or water loss equates to non-revenue water that has been purchased from the Regional Water Supply Service. Therefore, it is important to reduce the loss in the system by many means including ensuring that the services are sound. The CRD has bylaws that promote responsible water use our customers expect us to set a good example and keep our part of the system in good working order.
4. Cost of repair work – Generally, leak repairs are unplanned and urgent in nature, and as a result, can be more expensive than planned work.
5. CRD customer service/billing effort – The CRD customer service and utility billing staff spend approximately 1,000 hours annually on leak related inquiries and issues. Also, the CRD operating staff expend in excess of 2,000 hours annually attending to leaks related issues.

**REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT FIVE-YEAR FIRE FLOW UPGRADE PROGRAM – 2015 (YEAR 4) SUMMARY  
AND NEXT STEPS**

**ISSUE**

To provide a summary of the fourth year of the five-year fire flow upgrade program and identify potential next steps in 2016 and beyond.

**BACKGROUND**

The Five-Year Fire Flow Upgrade Program was approved by the Juan de Fuca Water Distribution Commission (Commission) at the April 5, 2011 Commission meeting. The purpose of the fire flow upgrade program is to improve the distribution system's ability to provide fire flows in accordance with the Fire Underwriters Survey (FUS) recommendations. The commission approved that the program be implemented over a five-year period (from 2012 to 2016) at a total program budget of \$9.4 million (average of \$1.88 million per year).

As of writing this report, the projected expenditures for year 2015 of the program are \$1,880,000 and the budget for year 2016 of the program, including prior year carry forward project funding, is forecast to be \$2,380,000. The overall budget upon completion of the 2016 projects is projected to be within the total program budget of \$9.4 million.

The attached table (Table A) summarizes the intended improvements under the original scope of work for the fire flow upgrade program and the status of the work completed to date. There have been some changes to the original scope of work due to a number of reasons including: updates to FUS criteria (Rural), other capital (developer) project improvements, and hydraulic modelling updates (i.e. as improvements were completed and FUS criteria was updated, the hydraulic model confirmed that some pipe sections now meet FUS fire flows without having to upsize the pipe). Some of the changes have been previously noted in the past Commission staff reports related to the fire upgrade program (2010-2014).

**Next Steps in 2016 and Beyond**

While completing the fire flow upgrade program (over the last four years) and through further system analysis, it has been determined that there are additional deficiencies in the system that would cause certain areas to not meet FUS recommendations. Some of the additional deficiencies include: inadequate fire hydrant spacing to FUS recommendations, dead-end water mains that do not have fire hydrants and reservoir storage volumes necessary to meet flow duration recommendations. In addition, there may be some locations where, if a new hydrant is added, there may not be sufficient fire flow due to insufficient pipe diameter or low pressure (at higher elevations). CRD currently has an annual capital program, which allocates \$70,000 each year for the replacement or installation of additional fire hydrants within the Juan de Fuca Water system. CRD staff will continue to work with the local fire departments in each community to

confirm any new hydrant locations and model the system on an on-going basis to confirm if additional upgrades are required. However, until such time when all deficiencies are complete, certain areas will continue to have reduced fire flow capacity relative to FUS recommendations.

Therefore, as noted in the proposed 2016 Juan de Fuca Water Distribution Budget - Fire Flow Upgrade Program Phase 2 Volume/Flow Upgrade Program Review, it is recommended that the outstanding deficiencies be confirmed in 2016 in order to set a plan to undertake the improvements.

## **ALTERNATIVES**

### **Alternative 1:**

That the Juan de Fuca Water Distribution Commission direct staff to prepare a report for the Commission's consideration as part of a new capital project identified as "Fire Flow Upgrade Program Phase 2 Volume/Flow Upgrade Program Review" in the proposed 2016 capital budget, that will confirm outstanding fire flow deficiencies and establish a plan to undertake the improvements necessary to resolve the deficiencies.

### **Alternative 2:**

That the Juan de Fuca Water Distribution Commission request staff to report back at a future meeting with further information.

## **IMPLICATIONS**

Alternative 1: This will enable staff to work with the local fire departments to assess and determine where any additional fire hydrants should be located and location specific flow and pressure requirements. The system can then be modelled again to confirm all remaining upgrades that are needed in order to meet FUS recommendations.

Alternative 2: There are no specific financial implications by requesting additional information be presented at a future meeting. However, until such time when all the necessary upgrades are completed, certain areas in the community will continue to have reduced fire flow relative to the FUS criteria.

## **CONCLUSION**

The Five-Year Fire Flow Upgrade Program has been very successful to date in that the majority of the system now has a level of fire flow capacity based on FUS minimum recommendations at the existing fire hydrant locations within the Juan de Fuca water system. However, subsequent to establishing the five-year Fire Flow Upgrade Program in 2011, it has been determined that there are additional deficiencies in the system that would cause certain areas to not meet FUS recommendations. Therefore, it is proposed that staff continue to work with the local fire departments to confirm new hydrant locations and verify, through further study, any other outstanding deficiencies with a goal of achieving the relevant FUS fire flow recommendations throughout the distribution system in concert with the local fire departments.

**RECOMMENDATION**

That the Juan de Fuca Water Distribution Commission direct staff to prepare a report for the Commission's consideration as part of a new capital project identified as "Fire Flow Upgrade Program Phase 2 Volume/Flow Upgrade Program Review" in the proposed 2016 capital budget, that will confirm outstanding fire flow deficiencies and establish a plan to undertake the improvements necessary to resolve the deficiencies.



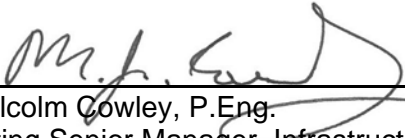
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Joseph Marr, P.Eng.  
Project Engineer, Water Engineering and  
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Infrastructure Engineering Division



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Scott Mason, P.Eng.  
Manager, Water Engineering and Planning  
Infrastructure Engineering Division



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Malcolm Cowley, P.Eng.  
Acting Senior Manager, Infrastructure  
Engineering  
Concurrence



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Ted Robbins, B.Sc., C.Tech  
General Manager, Integrated Water  
Services  
Concurrence

JWM/TR:mm

Attachment: 1

Table A – Original (2011) Water Main Projects by Municipality and Status

**Colwood Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Fulton Road (Phase 1)	488	150/200	300	Completed - 2012
Cuaulta Crescent	284	150	250	Completed - 2012
Fulton Road	387	150	300	Completed - 2012
Karger Terrace	188	150	200	Not required – developer installed upgrade improving fire flow within area
Sunheights Drive	74	150	200	Completed - 2013
Blue Sky Place	194	150	200	Completed - 2013
Baille Avenue *	218	150	200	Completed - 2015
Galiano Crescent *	401	150	200	Completed - 2015
Fulton Road (Phase 2)	237	150	300	Completed - 2013
Bexhill Road	314	200	250	Completed - 2013
Bexhill Place	153	150	200	Completed - 2013
Acland Avenue *	199	150	200	Completed - 2014
Galloway Road *	345	150	200	Completed - 2014
Mary Anne Crescent	189	150	200	Not required – alternative solution (additional hydrant location)
Fulton Road (Phase 3)	235	150	200	In progress - 2015
Lascelles Road	86	new pipe	200	Completed -2015
Painter Road	118	150	200	To be completed - 2016
Jacklin Road	133	150	200	In progress - 2015
Cecil Blogg Drive	358	150	200	Completed - 2015
Cecil Place	68	150	200	To be completed - 2016
Drummond Way	246	150	200	To be completed - 2016
Jacklin Road	234	150	200	Not required due to pressure zone change

\*Included in existing annual water main replacement program

**Langford Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Phelps Ave	144	150	200	Completed - 2012
Hansen Ave	552	150	200	Completed - 2012
Bellamy Road (Phase 1)	119	150	200	Completed - 2012
Mocha Close	30	150	200	Deferred for further analysis - upgrades may not be required
Klahanie Dr *	559	150	250	Completed - 2012
Willing Drive *	167	150	250	Completed - 2012
Glennan Road*	93	150	200	Completed -2011
Bellamy Road (Phase 2)	37	100/150	200	Completed - 2013
Goldie Avenue	145	150	200	Completed - 2013
Gourman Place	151	150	200	Completed - 2013
Setchfield Avenue	240	150	200	Not required – fire flow met through unrelated upgrades
Langvista Drive	243	150	200	Completed - 2013
Jeanine Drive	422	150	200	Completed - 2014
Mill Hill Rd	163	150	200	Completed - 2014
Fieldview Terrace	105	new pipe	200	Completed - 2015
Loch Glen Place	63	150	200	Not required – fire flow met through unrelated upgrades
Leigh Road	276	150	200	Completed - 2015
Sawyer Road	293	150	200	Deferred for further analysis - upgrades may not be required
Sooke Road *	732	150/200	300	To be completed -2016
Vantilburg Crescent*	73	150	200	Completed - 2015
Goldstream Avenue	55	150	200	Completed - 2015
Atkins Road	267	150	200	Completed - 2015
Dicker Road	121	150	200	Completed - 2015
Klahanie Dr	235	150	200	Completed - 2015
Windship Place	81	150	200	Not required – fire flow met through unrelated upgrades

\*Included in existing annual water main replacement program



**Sooke Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Woodlands Road	427	150	200	<i>Completed - 2012</i>
Calvert Road *	138	100	150	<i>Completed - 2012</i>
Sooke Road	55	n/a	200	<i>Completed - 2015</i>
Sooke Road	13	100	200	<i>Deferred for further hydraulic analysis pump station upgrades may be required.</i>
Ludlow Road	632	150	250	<i>Deferred for further hydraulic analysis pump station upgrades may be required.</i>
Ayum Road	58	150	250	<i>Deferred for further hydraulic analysis pump station upgrades may be required.</i>
Blythwood Road *	562	100	200	<i>Completed - 2014</i>
Otter Point Road	155	150	200	<i>To be completed - 2016</i>
Eakin Drive	92	150	200	<i>To be completed - 2016</i>
Grant Road	407	200	250	<i>To be completed - 2016</i>
Henlyn Road	263	200	250	<i>To be completed - 2016</i>
Cedar Brook Pl	5	150	200	<i>To be completed - 2016</i>
Firwood Pl	370	150	200	<i>Deferred - dependent on development</i>
Maple Park Terr	114	150	200	<i>Deferred - dependent on development</i>
Mountain Heights	126	150	200	<i>Deferred - dependent on development</i>

\*Included in existing annual water main replacement program

**Metchosin Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Brookview Drive	341	100	150	Completed - 2012
Hackamore Drive	237	150	250	Completed - 2012
Sundance Drive	100	100	200	Completed - 2012
Chalister Court	160	100	150	Completed - 2012
Glen Forest Way	272	150	200	Completed - 2012
Hi-mount Drive	208	150	200	Completed - 2012
Rocky Point Road	1007	200	300	Not required due to reassessment of rural fire flow criteria
Clapham Drive	536	150	200	Completed - 2014
Parry Cross Road	81	100	150	Completed - 2015
Parry Road	380	150	200	Completed - 2015
Lisandra Road	207	150	200	To be completed - 2016
William Head Road	306	200	250	To be completed - 2016
Pearson College Rd	217	150	250	To be completed - 2016
Pearson College Rd	720	150	200	Not required due to reassessment of rural fire flow criteria

**View Royal & Songhees First Nation Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Admirals Road *	46	150	200	To be completed - 2016
Cooper Road	294	150	200	To be completed - 2016
Ned Williams Rd	367	100	200	To be completed - 2016
Ned Williams Rd	88	150	200	To be completed - 2016

\*Included in existing annual water main replacement program

**Juan de Fuca Electoral Area Upgrades**

Street Name	Length (m)	Existing Dia (mm)	Proposed Dia (mm)	Status
Elan Place	366	150	250	<i>In progress - 2015</i>
Andover Road	478	150	200	<i>Completed - 2014</i>
Winslow Road	652	150	200	<i>Completed - 2014</i>
Andover Road	288	150	200	<i>To be completed - 2016</i>
PRV at Sooke Rd Llanillar	n/a	n/a	n/a	<i>Deferred for further hydraulic analysis - water main upgrades versus PRV</i>
Check Valve at Llanilar Rd	n/a	n/a	n/a	<i>To be completed - 2016</i>

**REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT**      **EXTENSION OF CONTRACT NO. 2014-920 - SUPPLY OF TRAFFIC  
CONTROL SERVICES**

**ISSUE**

To recommend the extension of the award of the contract for the Supply of Traffic Control Services to support the Infrastructure Operations Division, for one year (2016) of the two extensions allowed under the current contract awarded in 2014 to Domcor Health, Safety & Security Inc.

**BACKGROUND**

The Juan de Fuca Water Distribution Commission will be considering the 2016 Capital and Operating Budget at its October meeting. One major capital expenditure in 2016 includes the continuation of the water distribution main replacement program and the five-year fire flow upgrade program primarily within the Juan de Fuca Water service area. There are other maintenance works that are also performed throughout the service area as required.

As part of the delivery of the annual capital and operating programs, the construction team utilizes traffic control services staff and equipment when required. This service is a contracted service where the people and equipment fulfil a variety of functions, on an hourly or daily basis as required.

The current contract for supply of this service was awarded to Domcor Health, Safety & Security Inc. in 2014. The original one-year contract includes an extension clause for three one-year term extensions. The proposed extension would be the first year of the three one-year extensions allowed in the contract.

The Juan de Fuca Water Distribution Commission's authority to approve contracts is outlined in the *Capital Regional District Delegation Bylaw No. 1, 2001* (a Bylaw to Delegate Powers, Duties and Functions of the Capital Regional District Board). Accordingly, the Commission has the authority to approve contracts over \$200,000. As the extension of the contract for the Supply of Traffic Control Services for the Integrated Operations division is over \$200,000, the Juan de Fuca Water Distribution Commission's approval is required. The value of the contract for 2015 was approximately \$205,000. It is expected that the 2016 contract will be of similar value.

**ALTERNATIVES**

**Alternative 1:** That the Juan de Fuca Water Distribution Commission approve the extension of the award of the contract for the Supply of Traffic Control Services to support the Infrastructure Operations Division for one year, effective October 16, 2015 based on the hourly/daily rates as submitted in the 2014 tender, not including taxes.

Alternative 2: That the Juan de Fuca Water Distribution Commission not approve the extension of the award of the contract for the Supply of Traffic Control Services to support the Infrastructure Operations Division, and direct staff to retender the service.

**IMPLICATIONS**

Under Alternative 1, the current construction methods, utilizing the Supply of Traffic Control Services would continue without impacting the approved annual capital and operating programs and providing the opportunity to extend the current contract and pricing.


Under Alternative 2, not approving the contract extension would require a new tender for Supply of Traffic Control Services, or consideration of alternative construction methods, which could impact services and budgets for annual capital and operating programs.

**CONCLUSION**

As the current contract for Domcor Health, Safety & Security Inc. includes an extension clause for three one-year term extensions and, as the CRD is satisfied with the current services, it is recommended that the Commission approve a one-year extension. For the extension to be exercised, all terms and conditions of the original contract must remain unchanged.

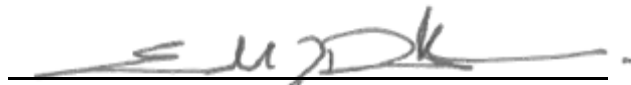
**RECOMMENDATION**

That the Juan de Fuca Water Distribution Commission approve the extension of the award of the contract for the Supply of Traffic Control Services to support the Infrastructure Operations Division for one year, effective October 16, 2015 based on the hourly/daily rates as submitted in the 2014 tender, not including taxes.



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Todd Scaber  
Manager, Water System Operations  
Infrastructure Operations Division



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Ted Robbins, B.Sc., C.Tech.  
General Manager, Integrated Water Services  
Concurrence

TS/TR:mm

**REPORT TO JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT**      **EXTENSION OF CONTRACT NO. 2012-744 - SUPPLY OF RENTAL  
EQUIPMENT, EXCAVATORS, GRAVEL TRUCKS, AND BACKHOES**

**ISSUE**

To recommend the extension of the award of the contract for the supply of Supply of Rental Equipment, Excavators, Gravel Trucks, and Backhoes to support the Infrastructure Operations Division for the final year of the remaining extension allowed under the current contract awarded in 2012 to Tri-X Excavating Ltd.

**BACKGROUND**

The Juan de Fuca Water Distribution Commission will be considering the 2016 Capital and Operating Budget at its October meeting. One major capital expenditure in 2016 includes the continuation of the water distribution main replacement program and the five-year fire flow upgrade program within the Juan de Fuca Water service area. There are other maintenance works that are also performed throughout the service area as required.

As part of the delivery of the annual capital and operating programs, the construction team utilizes a variety of heavy equipment including the dry lease of equipment when required. This equipment is a contracted service where the equipment fulfils a variety of functions, on an hourly or daily basis as required.

The current contract for supply of this service was awarded to Tri-X Excavating Ltd. in 2012. The original two-year contract included an extension clause for two one-year term extensions. The proposed extension would be the final extension of the two one-year extensions allowed in the contract.

The Juan de Fuca Water Distribution Commission's authority to approve contracts is outlined in the *Capital Regional District Delegation Bylaw No. 1, 2001* (a Bylaw to Delegate Powers, Duties and Functions of the Capital Regional District Board). Accordingly, the Commission has the authority to approve contracts over \$200,000. As the extension of the Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes, Water Management division, contract is over \$200,000, the Juan de Fuca Water Distribution Commission's approval is required. The value of the contract for 2015 was approximately \$435,000. It is expected that the 2016 contract will be of similar value.

**ALTERNATIVES**

**Alternative 1:** That the Juan de Fuca Water Distribution Commission approve the extension of the award of the contract for the Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes to support the Infrastructure Operations Division for one year, effective October 31, 2015, based on the hourly/daily rates as submitted in the 2012 tender, not including taxes.

Alternative 2: That the Juan de Fuca Water Distribution Commission not approve the extension of the award of the contract for the Supply of Rental Equipment, Excavators, Gravel Trucks, and Backhoes to support the Infrastructure Operations Division, and direct staff to retender the equipment service.

**IMPLICATIONS**

Under Alternative 1, the current construction methods, utilizing the Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes would continue without impacting the approved annual capital and operating programs and providing the opportunity to extend the current contract and pricing.

Under Alternative 2, not approving the contract extension would require a new tender for Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes, or consideration of alternative construction methods, which could impact services and budgets for annual capital and operating programs.

**CONCLUSION**

As the current contract with Tri-X Excavating Ltd. includes an extension clause for two one-year term extensions and, as the CRD is satisfied with the current services, it is recommended that the Commission approve a one-year extension. For the extension to be exercised, all terms and conditions of the original contract must remain unchanged.

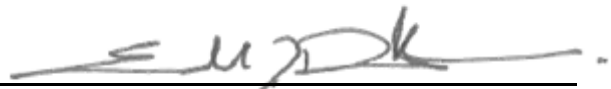
**RECOMMENDATION**

That the Juan de Fuca Water Distribution Commission approve the extension of the award of the contract for the Supply of Rental Equipment, Excavators, Gravel Trucks and Backhoes to support the Infrastructure Operations Division for one year, effective October 31, 2015, based on the hourly/daily rates as submitted in the 2012 tender, not including taxes.



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Todd Scaber  
Manager, Water System Operations  
Infrastructure Operations Division



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Ted Robbins, BSc, CTech  
General Manager, Integrated Water Services  
Concurrence

TS/TR:mm



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Agenda Item 11  
REPORT #JWDC 2015 - 18

**REPORT TO THE JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT     SERVICE PLANS REVIEW PROCESS**

**ISSUE**

The service and financial planning process for the Capital Regional District (CRD) is currently underway. The new planning cycle will focus on years 2016 to 2019. This cover report is developed to provide information to all Committees/Commissions reviewing Service Plans.

**BACKGROUND**

Reporting on the service and financial planning process began with a report to the September 2, 2015 Finance Committee meeting that provided a high level overview of the overall planning process and timeline (Attachment 1). A Corporate Plan has also been developed to assist the organization in focusing on achieving Board priorities while continuing to efficiently deliver services and planned capital projects.

The planning cycle is aligned with the 4 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.

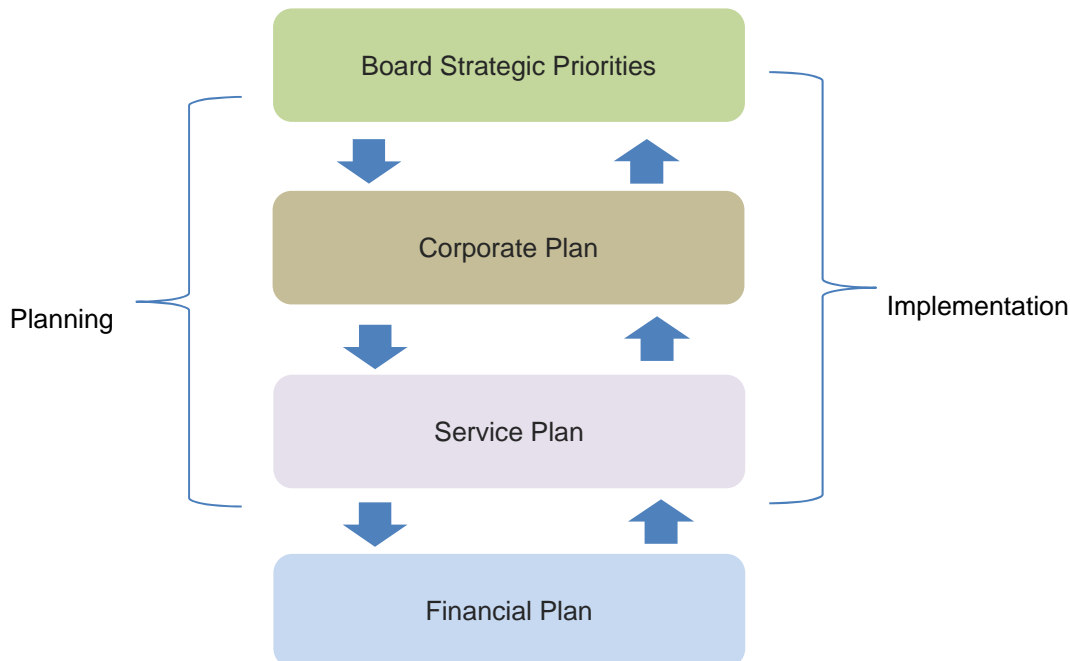
The budget planning cycle is linked to the statutory five year financial plan which shows the planned contribution of operating revenue required to fund proposed capital projects together with planned borrowing and anticipated grants. The financial plan is developed to ensure consistency and alignment with the legislative authority of the various CRD services which, upon approval, provide the expenditure authority for the operations of the CRD.

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, 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. 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 make service amendments as necessary.



### Looking ahead to 2016-2019

The following planning process has been undertaken for the 2016-2019 term:



### Approval Process

The presentation of service plans to the appropriate committee permits a more detailed assessment and knowledge of service delivery and programs. Service plans are intended to provide the committees with information on each division and provide committees the opportunity to review the work program and make service amendments as necessary. 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.

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

### **FINANCIAL IMPLICATIONS**

2016 Financial Plan estimates are being worked on and will be presented for review and approval at the EASC meetings in October and Committee of the Whole meeting in November. The Financial Plan will reflect the results of the Committee review of service plans.

**CONCLUSION**

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 Juan de Fuca Water Distribution Commission approve the attached service plans.



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Ted Robbins, B.Sc., C.Tech.  
General Manager, Integrated Water Services

RS:mm  
Attachments

# Service Plan for Watershed Protection

2016-2019

Capital Regional District

*Date prepared: September 4, 2015*

*Date submitted:*



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# 1 Overview

## 1.1 Division & Service Summary

### a) **General Overview of the Division.**

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:

Wildfire, Security and Emergency Response:

- Watershed security
- Wildfire and spill preparedness, prevention and response

Watershed Operations:

- Silviculture, forest health and forest fuel management
- Invasive plant management
- Vegetation management (previously referred to as Facilities maintenance)
- Road maintenance, upgrades and rehabilitation

Resource Planning

- Wildlife management
- Ecological inventories and analyses
- Risk assessment and management
- GIS and data management
- Research and monitoring

### b) **Service overview and descriptions.**

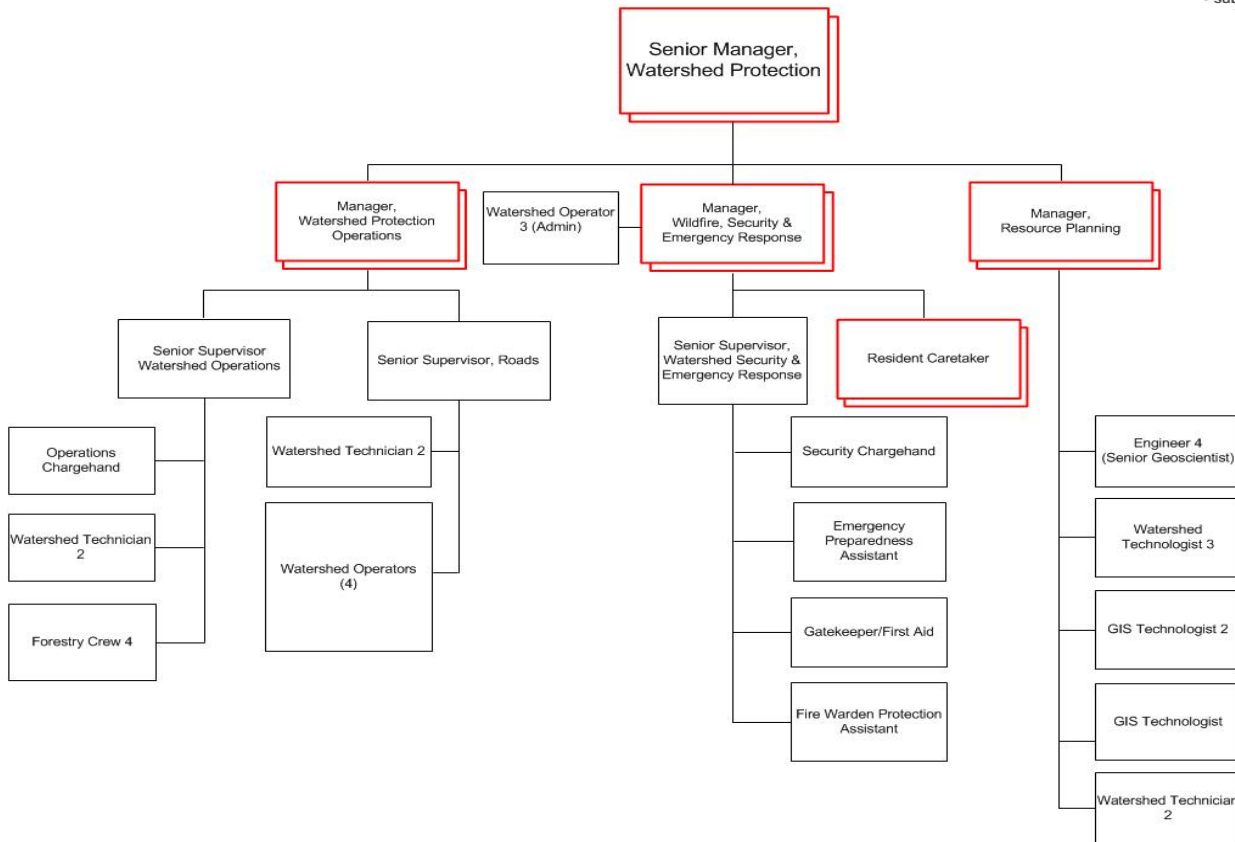
Service Purpose , Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
Wildfire, Security & Emergency Response	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee
Watershed Operations	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee
Resource Planning	Regional Water Supply Service All municipalities	Bulk water rate	Regional Water Supply Commission; Water Advisory Committee

# 1.2 Organization Chart



Making a difference...together

**Integrated Water Services**  
 Watershed Protection  
 - subject to change -  
 E&OE



Updated by Human Resources  
 October 2014

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

### Wildfire, Security and Emergency Response:

- 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.
- 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.
- Warming climate is expected to provide a longer period of high/extreme fire danger conditions and greater fuel availability within the GVWSA. Fire fighting 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 fire fighting experience with the provincial Wildfire Management Branch.
- Lack of training and 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 4 years.

### Watershed Operations

- A warming climate 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.
- The addition of the Leech River watershed nearly doubled the landbase to manage for water supply. Although capital funds have been allocated to replace or decommission inadequate roads, culverts and bridges in a long term rehabilitation plan for the Leech; there are inadequate resources to maintain these facilities within the existing operating budget.

## Resource Planning

- 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.
- 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.
- The update of the watershed assessment for the GVWSA may identify new issues or priorities for watershed protection and stewardship, water quality and water supply.

## 1.4 Link to Board Strategic Priorities

### Wildfire, Security & Emergency Response:

1. Opportunity to propose agreements with First Nations regarding access for hunting on GVWSA lands (objective #6b);
2. Opportunity to provide First Nations economic development opportunities in providing environment and culture monitoring services and a traditional use study of the Leech watershed (objective #6c).

### Watershed Operations:

3. Implementation of climate adaptation strategies (objective #1d):
  - increasing forest resilience through reforestation and species selection during forest fuel management to favour a more diverse range of tree species; and,
  - using climate change predictions to ensure existing stream crossings have bridges and culverts sized to meet the increased peak flows anticipated in the next 100 years.
4. Providing First Nations economic development opportunities in vegetation and forest fuel management (objective #6c).
5. Implementing regional best practices for managing invasive species on water supply area lands. Providing reports to the RWSC and public on those practices (objective #12e).

### Resource Planning:

6. Participating in discussions to determine the future CRD role in regional wildlife management (objective #12a).
7. Assessing the potential impacts of climate change on the ecology of water supply reservoirs and terrestrial ecosystems in the GVWSA, undertaking climate change adaptation planning for the water supply area and participating in the development of adaptation strategies (objective #1d).
8. Providing engagement opportunities with the public, secondary and post-secondary students through guided tours of the water supply area lands and facilities (objective #7g and 8d).



# 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>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>• First Nations Environment and Culture Monitoring</li> <li>• Transition Emergency Preparedness Asst to Security Asst</li> </ul>	<ul style="list-style-type: none"> <li>• First Nations Environment and Culture Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• First Nations Environment and Culture Monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• First Nations Environment and Culture Monitoring</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>			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>	

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 twice per year;</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>• Plan and oversee implementation of actions from Greater Victoria Water Supply System Strategic Plan</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>• Biosecurity strategy</li> <li>• Expanded public tours – 36 tours within a 3 to 4 month period</li> </ul>	<ul style="list-style-type: none"> <li>• Update of the Watershed Assessment</li> <li>• GVWSA Management Plan</li> <li>• Plan forest hydrology program</li> <li>• Fish stream assessments</li> </ul>	<ul style="list-style-type: none"> <li>• State of the GVWSA Report</li> <li>• Regional Water Supply Strategic Plan</li> <li>• Implement forest hydrology program</li> <li>• Fish stream assessments</li> </ul>	<ul style="list-style-type: none"> <li>• Report out on State of the GVWSA</li> <li>• Regional Water Supply Strategic Plan</li> <li>• Fish stream assessments</li> </ul>

## 2.2 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	8.33	8.33	8.33
<b>Watershed Operations</b>	11.33	11.33	11.33	11.33	11.33
<b>Resource Planning</b>	6.33	<b>7.33</b>	<b>7.33</b>	<b>7.33</b>	<b>7.33</b>
<b>Total</b>	26 FTE	<b>27 FTE</b>	<b>27 FTE</b>	<b>27 FTE</b>	<b>27 FTE</b>

1.0 FTE increase in Resource Planning results from the proposed establishment of a Watershed Technologist and Information Officer position to provide capacity for:

- Resource Planning projects including the update of the 1999 Watershed Assessment, Regional Water Supply System Strategic Plan, Safety Management System, GVWSA Management Plan, State of the GVWSA Report, and coordination of external watershed research.
- To facilitate and lead watershed tours to meet demand and expectations. The annual tour program provides opportunities for tour groups including general public tours, tours for education groups including elementary to high school groups, post-secondary school groups, research groups, and other utilities.

## 3 Divisional Initiatives & Budget Implications

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Amendment of the Greater Victoria Water Supply Area Protection Bylaw no. 2804</b>  <b>April 2016</b>	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.		Core budget
<b>Traditional Use Access Agreement</b>  <b>April 2016</b>	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 6b, 6c	\$50,000 single supplemental request for 2016 and 2017 to fund local First Nation to provide two First Nations Environment and Culture Monitors from May – Sept. annually
<b>Security upgrade – Goldstream Entrance to the GVWSA</b>  <b>November 2016</b>	The Goldstream entrance to the GVWSA was re-designed in 2015 and will be constructed in 2016 to address security and biosecurity needs.		Capital
<b>Climate Change Adaptation Strategy for the GVWSA</b>  <b>December 2016</b>	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.	Climate Change 1d	Core budget and external funding (assistance from 3 month intern funded through Pacific Institute for Climate Solutions)
<b>Biosecurity Strategy for the GVWSA</b>  <b>December 2016</b>	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.	Biodiversity and Ecosystem Health 12e	Core budget

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>Public tours expansion</b>	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.	Governance 7g and 8a	Continuous supplementary budget request for 1.0 FTE in Resource Planning.
<b>Leech Restoration Dec 2016</b>	<ul style="list-style-type: none"> <li>• Upgrade of Weeks Main north</li> <li>• Deactivation of Survey Main</li> </ul>		Capital
<b>Forest Fuel Management Projects 2016 - 2019</b>	Establishment and maintenance of forest fuel breaks to help protect Sooke Lake Reservoir from the effects of large scale wildfire.	Climate Change 1d	Core budget
<b>2017</b>			
<b>Updated Watershed Assessment 2015 - 2017</b>	As above		Core budget
<b>Watershed Management Plan Nov 2017</b>	The management of the GVWSA will be documented and results of the watershed assessment and biosecurity and climate change strategies will be incorporated.		Core Budget
<b>Assessment of Streams in the GVWSA  2017-2019</b>	A three year program to assess the fish habitat potential, channel stability, and proper functioning condition of streams in the GVWSA.		Capital
<b>Leech Restoration  Dec 2017</b>	Upgrade of Weeks Main running surface and minor culverts		Capital
<b>Waugh Creek Bank Stabilization  Oct 2017</b>	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.		Capital

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2018</b>			
<b>Regional Water Supply Strategic Plan</b>  <b>2018 - 2019</b>	The Resource Planning section will provide significant support to the department in developing a new strategic plan.		Core budget with supporting studies funded by Capital
<b>State of the GVWSA Report</b>  <b>Dec 2018</b>	Development of a set of sustainability indicators for the health and management of the GVWSA.	Climate change 1d	Core budget
<b>Leech forest hydrology monitoring network</b>  <b>Nov 2018</b>	Implementation of a network of hydrology monitoring stations in the Leech WSA		Capital and Core budget
<b>Assessment of Streams in the GVWSA</b>  <b>2017-2019</b>	Determine fish habitat potential, channel stability, and proper functioning condition of streams in the GVWSA.		Capital
<b>Leech Restoration</b>  <b>Dec 2018</b>	a. Development of Lazar Main b. Leech road maintenance		a. Capital b. Continuous supplementary request for \$75,000 for Leech road maintenance.
<b>Leech River/Weeks Main Bridge replacement</b>  <b>Oct 2018</b>	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.	Climate change 1d	Capital
<b>Forest Fuel Management</b>  <b>2016 – 2019</b>	Establishment and maintenance of forest fuel breaks to help protect Sooke Lake Reservoir from the effects of large scale wildfire.	Climate Change 1d	Core budget

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2019</b>			
<b>Regional Water Supply Strategic Plan</b>  <b>2018 - 2019</b>	The Resource Planning section will provide significant support to the department in developing a new strategic plan.		Core budget with supporting studies funded by Capital
<b>Leech Restoration</b>  <b>Dec 2019</b>	a. Leech road maintenance  b. West Leech road upgrades/deactivation		a. Core budget (continuous supplemental request of \$75,000 in 2018)  b. Capital
<b>Forest Fuel Management</b>  <b>2016 - 2019</b>	Establishment and maintenance of forest fuel breaks to help protect Sooke Lake Reservoir from the effects of large scale wildfire.	Climate Change	Core budget
<b>Assessment of Streams in the GVWSA</b>  <b>2017-2019</b>	Determine fish habitat potential, channel stability, and proper functioning condition of streams in the western portion of the Leech WSA.		Capital
<b>Replacement of Goldstream Main bridge</b>  <b>Oct 2019</b>	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.	Climate change 1d	Capital

# 4 Goals & Performance Indicators

	Service Goals	Performance Indicators
2016	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Leech WSA secured and enforced.</li> </ul> <p><i>(2015 current state: Leech WSA only partially secured and no enforcement ability)</i></p> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>All stream crossing structures in Sooke and Goldstream WSAs have been modelled for peak flow and replacement of undersized structures is planned based on risk priority.</li> </ul> <p><i>(2015 current state: less than 10 % of the structures in Sooke and Goldstream have been modelled for drainage area peak flow incorporating climate change factors)</i></p> <ul style="list-style-type: none"> <li>Weeks Main provides safe and efficient travel.</li> </ul> <p><i>(2015 current state: Weeks Main is rough and in need of surfacing)</i></p> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>GVWSA climate change adaptation strategy developed.</li> <li>Biosecurity strategy developed</li> </ul> <p><i>(2015 current state: strategies have not been developed)</i></p>	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Bylaw 2804 amended, Leech entrances secured and new enforcement procedures in place.</li> </ul> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>Completion of long term structure replacement plan for Sooke and Goldstream WSAs.</li> </ul> <ul style="list-style-type: none"> <li>Completion of Weeks Main north upgrade</li> </ul> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>GVWSA climate change adaptation strategy completed.</li> <li>Biosecurity strategy complete</li> </ul>
2017	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Level of spill preparedness upgraded</li> </ul> <p><i>(2015 current state: Spill Preparedness Plan is &gt; 10 years old, information and technology being used is outdated)</i></p>	<p><b>Wildfire, Security &amp; Emergency Response</b></p> <ul style="list-style-type: none"> <li>Spill Preparedness Plan revised, 1 comprehensive drill completed, ERP procedures revised to incorporate new equipment, technology or information.</li> </ul>



	Service Goals	Performance Indicators
	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• Sooke WSA protected from fire stemming from Leech via Horton Ridge</li> </ul> <p><i>(2015 current state: A 3 year project to implement a fuel break on Horton Ridge began in 2015)</i></p> <ul style="list-style-type: none"> <li>• All accessible Leech WSA structures assessed</li> </ul> <p><i>(2015 current state: Only upgraded Leech stream crossing structures (approx. 10 %) have been modelled for peak flow based on drainage area and climate change factors)</i></p> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>• Up-to-date information/inventory of the natural environment of the GVWSA</li> </ul> <p><i>(2015 current state: the existing Watershed Assessment was prepared in 1999 and does not incorporate new information or the Leech WSA)</i></p> <ul style="list-style-type: none"> <li>• Management of the GVWSA is documented under one cover</li> </ul> <p><i>(2015 current state: the management of the GVWSA as a whole is not documented as one management plan)</i></p>	<p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>• Horton Ridge fuel break completed</li> <li>• Completion of long term structure replacement plan for Leech WSA.</li> </ul> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>• Watershed Assessment completed</li> <li>• GVWSA Management Plan completed</li> </ul>

	Service Goals	Performance Indicators
2018	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Upgraded initial attack readiness within Watershed Protection staff.</li> </ul> <p><i>(2015 current state: 11 WP staff with fire suppression fitness and training; 4 WP initial attack crew leaders in training)</i></p> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>Leech roads maintained to same level as Sooke and Goldstream.</li> </ul> <p><i>(2015 current state: Leech roads receive little road maintenance due to lack of funding/resources)</i></p> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>Indicators developed to assess the health and sustainability of the GVWSA</li> </ul> <p><i>(2015 current state: no sustainability indicators for annual or bi-annual reporting have been developed)</i></p>	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>20 staff with fire suppression fitness and training within WP staff</li> <li>3 qualified and experienced initial attack crew leaders within WP staff</li> </ul> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>Leech road maintenance planned and implemented.</li> </ul> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>State of the GVWSA Report completed</li> </ul>
2019	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Greater detection capability of wildfires, trespass</li> </ul> <p><i>(2015 current state: wildfire surveillance is conducted manually with ground patrols and air patrols; security surveillance is assisted with video surveillance at critical infrastructure)</i></p> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>West Leech area incorporated into GVWSA management</li> </ul> <p><i>(2015 current state: the West Leech area is inaccessible and unmanaged)</i></p> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>Forest monitoring program for the GVWSA is established</li> </ul>	<p><b>Wildfire, Security &amp; Emergency Response:</b></p> <ul style="list-style-type: none"> <li>Implementation and advancement of drone technology, video surveillance, infrared detection of wildfires.</li> </ul> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>West Leech roads upgraded and/or deactivated.</li> </ul> <p><b>Resource Planning:</b></p> <ul style="list-style-type: none"> <li>All long term forest monitoring plots established and plans in place for regular data collection and analysis.</li> </ul>

	Service Goals	Performance Indicators
	<p><i>(2015 current state: 2 new monitoring plots established, data from existing research plots entered into the National Forest Inventory database. No strategy for long term data collection and analysis)</i></p> <ul style="list-style-type: none"> <li>• Stream assessment project completed.</li> </ul> <p><i>(2015 current state: Streams have only been assessed at critical crossings)</i></p>	<ul style="list-style-type: none"> <li>• Fish stream inventory for the GVWSA completed and incorporated into GIS</li> </ul>

## Contact

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# Service Plan for Infrastructure Engineering

2016-2019

Capital Regional District

*Date prepared: September 4, 2015*

*Date submitted:*



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# 1 Overview

## 1.1 Division & Service Summary

### a) General overview of the Division.

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

These infrastructure management tasks are provided for the following CRD services in the table below:

### b) Service overview and descriptions.

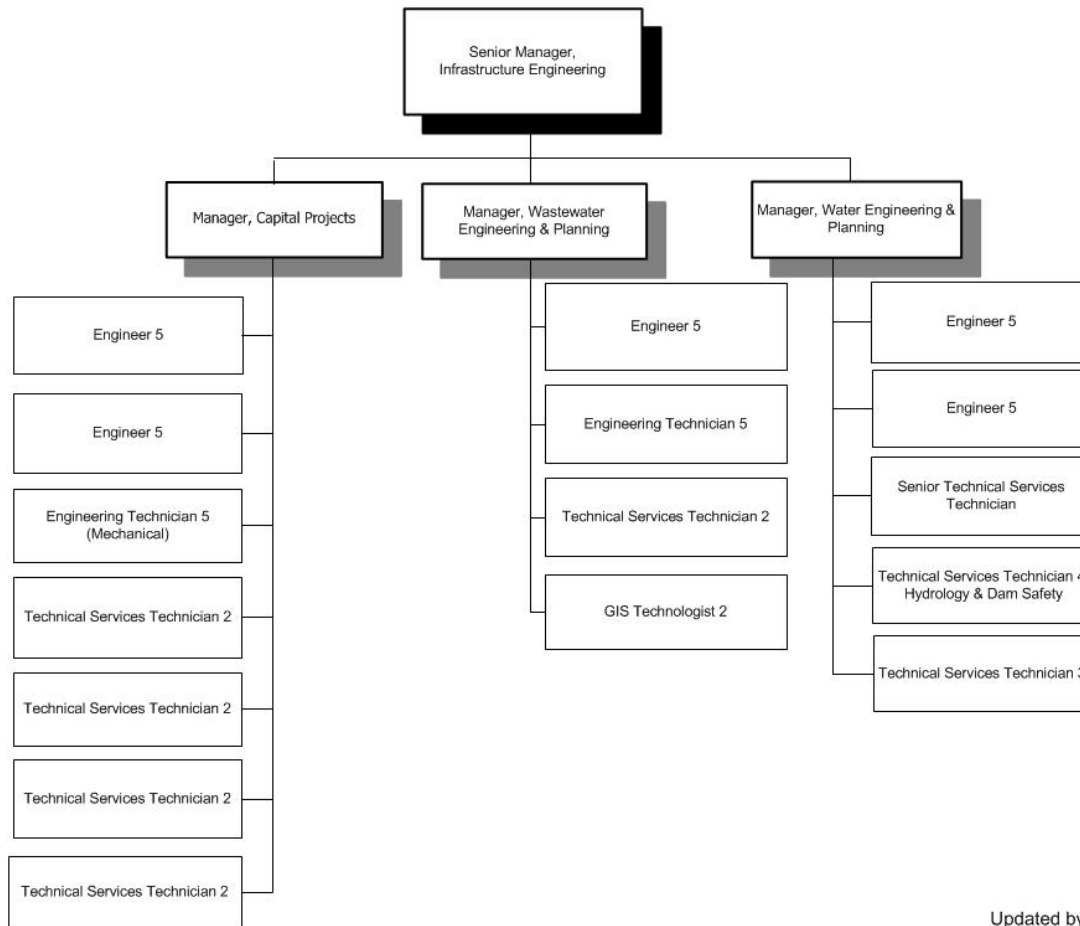
Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<b>Regional Water Supply</b> – IWS is the wholesale water supplier to the 350,000 consumers in Greater Victoria.	<ul style="list-style-type: none"> <li>• 4 Core Municipalities (Saanich, 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> – IWS is the retail water supplier to the 58,000 residents in the six municipalities in the Western Communities, Sooke, and 4 First Nations.	<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> – IWS is the wholesale water supplier to residents in the three municipalities on the Saanich Peninsula.	<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> – IWS provides sub-regional wastewater conveyance, treatment, and disposal services in the Core Area.</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> - IWS provides sub-regional wastewater conveyance, treatment, and disposal services for the Saanich Peninsula municipalities, and other participants.</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> – IWS provides local services in the JDF, SGI, and SSI Electoral Areas including 12 water systems, 4 sewer systems, 1 septage facility, 1 dock facility.</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 Water and Wastewater Local Service Commissions (Advisory Commissions)</p>

## 1.2 Organization Chart



Making a difference...together  
**Integrated Water Services**  
 Infrastructure Engineering



Updated by Human Resources  
 August 2015

## 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:** Vulnerabilities should be identified for all key life-line systems and plans prepared to mitigate risks and enhance reliability.
- **Regulatory Changes:** Increased stringency of environmental, safety and electrical regulations are causing cost increases for capital projects and operating budgets.
- **Reorganization:** Due to opportunities created through staff retirements and other staffing changes, the IE Division has been reorganized to enhance service delivery and alignment with the departmental operating areas. The reorganization reflects the division’s responsibility for all CRD water and wastewater infrastructure.



- **Project Delivery:** To better meet the objectives and priorities of client's needs and delivery 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.

## 1.4 Link to Board Strategic Priorities

### **Engineering Planning and Design:**

Seek and consider opportunities to incorporate climate mitigation and adaptation elements in infrastructure design (objectives #1a,c).

Support Core Area Wastewater Treatment Program planning, design and implementation and integrated waste management strategies (objectives #2a-e).

Evaluate regional water supply capacity and infrastructure requirements to support the Regional Growth Strategy goals and objectives (objective #10a).

## 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 Planning (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		
<b>Capital project delivery</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	Complete \$20M - \$25M program	Complete \$10M - \$20M program
<b>Engineering Services</b>	<ul style="list-style-type: none"> <li>Ongoing services for development referrals; hydrology and dam monitoring; survey and mapping; and operational support</li> </ul>	No change	No change	No change	No change

### 2.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Water Engineering &amp; Planning</b>	6.33	7.33	7.33	6.33	6.33
<b>Wastewater Engineering &amp; Planning</b>	5.33	5.33	5.33	5.33	5.33
<b>Capital Project Engineering</b>	8.33	8.33	8.33	8.33	8.33
<b>Total</b>	20	21	21	20	20

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 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. The new 2-year term FTE is funded entirely from planned capital projects in various utility service areas. At the end of 2017, the current 5 year term engineer position (established for 5-year JDF fire flow upgrade program 2012-2016) is proposed to convert into 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	Board Strategic Priority Reference (if applicable)	Budget Implications (core budget; single supplemental or; continuous supplemental request)
<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		Funded by Capital Budgets
<b>Small System Asset Management Plans</b>	Complete Strategic Asset Management Plans for 7 Small Water and Wastewater Systems, generate prioritized asset replacement list; identify funding model for long-term asset replacement plans		Funded by Capital Budgets
<b>Saanich Peninsula Water System Asset Management Plan</b>	Complete plan to establish long term strategy for infrastructure upgrades and financial plan		Funded by operating budget
<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		Funded by 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		Funded by 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.		Funded by Capital Budgets

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications (core budget; single supplemental or; continuous supplemental request)
<b>RWSC Upgrade Disinfection Process at Japan Gulch</b>	Implement new methods of adding chlorine and ammonia to water for disinfection		Funded by Capital Budgets
<b>2017</b>			
<b>Municipal Water and Wastewater Service Agreements</b>	Establish master water and wastewater service agreements with municipalities across region.		Funded by 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		Funded by Capital Budgets
<b>2018</b>			
<b>Regional Water Supply Strategic Plan</b>	Support other IWS divisions in completion and release of plan		Funded by Capital Budgets
<b>2019</b>			
<b>Utility Infrastructure Replacements</b>	Update service capital and financial plans with 2016-2018 asset management plan recommendations		Funded by Capital Budgets

# 4 Goals & Performance Indicators

Please identify service goals and performance indicators for the next four years. Consider goals related to: customer service, business processes, financial performance, community outreach & engagement, or operational processes. Goals may be quantitative or qualitative. Performance indicators should evaluate the success in achieving the goals.

	Service Goals	Performance Indicators
<b>2016</b>	<p>Infrastructure Planning: Complete new/updated SAMP's for all services/systems (23 in total). Baseline: 6 SAMP's were complete at the end of 2015.</p> <p>Capital Project Delivery: Projects completed on time. Baseline: about 80% of projects were completed on time in 2015.</p> <p>Development servicing applications and utility referrals: Improved processing and response time. Baseline: in 2015, the average processing time is about 65 days per application.</p>	<p>Plan to complete 9 SAMP's in 2016. Overall performance 65% complete.</p> <p>Plan to increase performance to 85% of annual planned projects completed on time.</p> <p>Plan to improve response time to within 60 days of receiving an application 100% of time</p>
<b>2017</b>	<p>Infrastructure Planning: Complete new/updated SAMP's for all services/systems (23 in total)</p> <p>Capital Project Delivery: Projects completed on time/on budget</p> <p>Development servicing applications and utility referrals: Improved processing and response time</p>	<p>100% complete (completion of 8 in 2017)</p> <p>90% of annual planned projects completed</p> <p>Response within 50 days of receipt 100% of time</p>
<b>2018</b>	<p>Capital Project Delivery: Projects completed on time/on budget</p> <p>Development servicing applications and utility referrals: Improved processing and response time</p>	<p>95% of annual planned projects completed</p> <p>Response within 40 days of receipt 100% of time</p>
<b>2019</b>	<p>Capital Project Delivery: Projects completed on time/on budget</p> <p>Development servicing applications and utility referrals: Improved processing and response time</p>	<p>100% of annual planned projects completed</p> <p>Response within 30 days of receipt 100% of time</p>

## Contact

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# Service Plan for Infrastructure Operations

2016-2019

Capital Regional District

*Date prepared: September 4, 2015*

*Date submitted:*



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# 1 Overview

## 1.1 Division & Service Summary

### a) General Overview of the Division.

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. Infrastructure Operations staff includes highly trained and qualified utility operators, tradespeople and technicians, who operate and proactively manage our valuable infrastructure assets that exist in the following service areas:

- The Regional Water Supply System – water supply, treatment and bulk transmission
- The Juan de Fuca Water Distribution System – retail water distribution
- The Saanich Peninsula Water Supply System – bulk water supply
- The Regional Trunk Wastewater System – wastewater conveyance and disposal
- The Saanich Peninsula Wastewater System – wastewater collection, treatment and disposal
- 17 Local Service Area Small Water and Wastewater Systems in the electoral areas:
  - Salt Spring Island Electoral Area: Beddis Water, Cedar Lane Water, Cedars of Tuam Water, Highland-Fernwood Water, Ganges Wastewater, Maliview Wastewater, Salt Spring Island Liquid Waste
  - Southern Gulf Islands Electoral Area: Lyall Harbour-Boot Cove Water, Magic Lake Estates Water and Wastewater, Skana Water, Surfside Water, Sticks Allison Water
  - Juan de Fuca Electoral Area: Port Renfrew Water and Wastewater, Wilderness Mountain Water

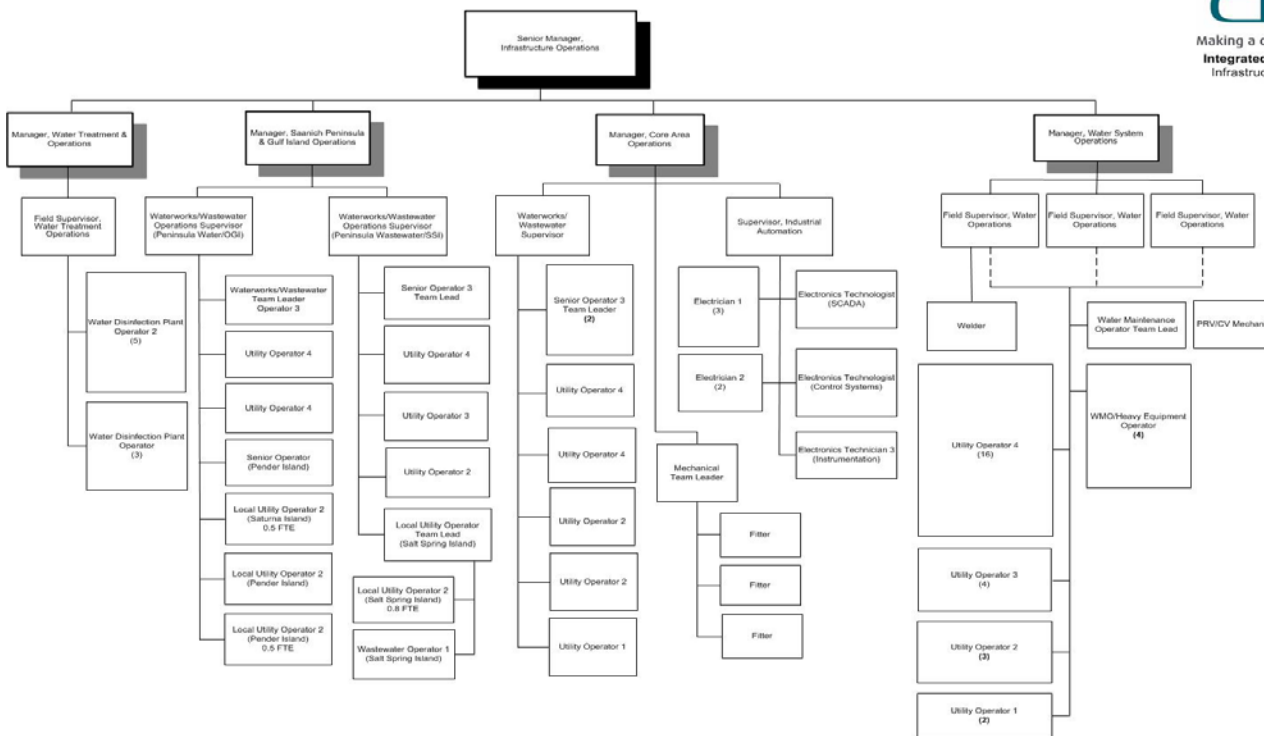
### b) Service overview and descriptions:

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<b>Regional Water Supply</b> – IWS is the wholesale water supplier to the 350,000 consumers in Greater Victoria.	<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> – IWS is the retail water supplier to the 58,000 residents in the six municipalities in the Western Communities, Sooke, and 4 First Nations.	<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> – IWS is the wholesale water supplier to residents in the three municipalities on the Saanich Peninsula.	<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> – IWS provides sub-regional wastewater conveyance, treatment, and disposal services in the Core Area.</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> - IWS provides sub-regional wastewater conveyance, treatment, and disposal services for the Saanich Peninsula municipalities, and other participants.</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> – IWS provides local services in the JDF, SGI, and SSI Electoral Areas including 12 water systems, 4 sewer systems, 1 septage facility, 1 dock facility.</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 Water and Wastewater Local Service Commissions (Advisory Commissions)</p>

# 1.2 Organization Chart



Updated by Human Resources August 2015

# 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.

**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 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.

## 1.4 Link to Board Strategic Priorities

Although there are not direct operational links to the 2015-2018 Board Strategic Priorities, the Division will respond to new policy and practices over the term as applicable to utility operations, including Climate Change and Integrated Waste Management.

The Infrastructure Operations Division services remain key to the corporate priority areas of Regional Infrastructure and Drinking Water.

## 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 operation</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>	No change	No change	No change	No change
<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>	No change	No change	No change	No change
<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>	No change	No change	No change	No change
<b>Capital works</b>	<ul style="list-style-type: none"> <li>• Main installations;</li> <li>• equipment replacement;</li> <li>• capital projects support</li> </ul>	No change	No change	No change	No change

### 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	36.5	36.5
<b>Core Area Wastewater Operations</b>	23.5	23.5	23.5	23.5	23.5
<b>Saanich Peninsula &amp; Gulf Islands Operations</b>	16.8	16.8	16.8	16.8	16.8
<b>Water Treatment Operations</b>	10	10	10	10	10
<b>Total</b>	86.8	86.8	86.8	86.8	86.8

*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	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Water and Wastewater Asset Management Plans</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, 7 local services.		Funded through operating budgets
<b>Disaster Response Plan for water supply and distribution</b>	Establish disaster response plan and emergency water supply and distribution plan in collaboration with Infrastructure Engineering		Capital Budget
<b>Cross Sectional Training and Development</b>	<p>Work with employees that are interested in opportunities to enhance their skills and abilities in other Infrastructure Operations work sections. Benefits include:</p> <ul style="list-style-type: none"> <li>• Enhanced workforce with more diverse employees</li> <li>• It will assist with workforce planning issues including succession planning, and future staffing requirements for the new Core Area Treatment Plant.</li> <li>• Continue to build on the reciprocal assistance and respect across Infrastructure Operations work sections originally initiated through the service delivery review.</li> </ul>		Employee initiative and co-operation could make this no cost to the operations budgets; however there could be a small increase to the training budgets.
<b>Standard Master Operating Procedure Manuals</b>	Develop master operating procedure manuals for the major utility systems – Regional Water Supply System		None (technical assistance may be required by others with no impact to the operations budget)

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2017</b>			
<b>Water and Wastewater Asset Management Plans</b>	As part of the comprehensive asset management planning work, develop long term operations and maintenance plans and corresponding financial plans for each utility – 8 local services.		Funded through operating budgets
<b>Disaster Response Plan for water supply and distribution</b>	Acquire operational materials and equipment for emergency water supply and distribution and coordinate with stakeholders.		Capital Budget
<b>Cross Sectional Training and Development</b>	<p>Work with employees that are interested in opportunities to enhance their skills and abilities in other Infrastructure Operations work sections. Benefits include:</p> <ul style="list-style-type: none"> <li>• Enhanced workforce with more diverse employees</li> <li>• It will assist with workforce planning issues including succession planning, and future staffing requirements for the new Core Area Treatment Plant.</li> <li>• Continue to build on the reciprocal assistance and respect across Infrastructure Operations work sections originally initiated through the service delivery review.</li> </ul>		Employee initiative and co-operation could make this no cost to the operations budgets; however there could be a small increase to the training budgets.
<b>Standard Master Operating Procedure Manuals</b>	Develop master operating procedure manuals for the major utility systems – Juan de Fuca Water & Saanich Peninsula Water		None (technical assistance may be required by others with no impact to the operations budget)

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2018</b>			
<b>Cross Sectional Training and Development</b>	<p>Work with employees that are interested in opportunities to enhance their skills and abilities in other Infrastructure Operations work sections. Benefits include:</p> <ul style="list-style-type: none"> <li>• Enhanced workforce with more diverse employees</li> <li>• It will assist with workforce planning issues including succession planning, and future staffing requirements for the new Core Area Treatment Plant.</li> <li>• Continue to build on the reciprocal assistance and respect across Infrastructure Operations work sections originally initiated through the service delivery review.</li> </ul>		Employee initiative and co-operation could make this no cost to the operations budgets; however there could be a small increase to the training budgets.
<b>Standard Master Operating Procedure Manuals</b>	Develop master operating procedure manuals for the major utility systems – Core Area Wastewater and Saanich Peninsula Wastewater		None (technical assistance may be required by others with no impact to the operations budget)
<b>2019</b>			
<b>Cross Sectional Training and Development</b>	<p>Work with employees that are interested in opportunities to enhance their skills and abilities in other Infrastructure Operations work sections. Benefits include:</p> <ul style="list-style-type: none"> <li>• Enhanced workforce with more diverse employees</li> <li>• It will assist with workforce planning issues including succession planning, and future staffing requirements for the new Core Area Treatment Plant.</li> <li>• Continue to build on the reciprocal assistance and respect across Infrastructure Operations work sections originally initiated through the service delivery review.</li> </ul>		Employee initiative and co-operation could make this no cost to the operations budgets; however there could be a small increase to the training budgets.

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>Standard Master Operating Procedure Manuals</b>	Develop master operating procedure manuals for the small utility systems – Local Service Areas		None (technical assistance may be required by others with no impact to the operations budget)



# 4 Goals & Performance Indicators

	Service Goals	Performance Indicators
2016	Complete annual planned maintenance on water and wastewater systems	94% completed annually
	Compliance with Island Health, Provincial and Federal drinking water health guidelines in all water service areas	Full compliance on health related limits 100% of time
	Compliance with wastewater system operating permits	Full compliance with operating permit conditions 100% of time
	Reduce number of unplanned wastewater overflows/bypasses annually (non-weather related)	Annual number of unplanned overflows/bypasses: 3
	Reduce number of unplanned interruptions to water service	Annual number of interruptions by service area: Regional Water – 0; Juan de Fuca Water – 15; Saanich Peninsula Water – 0; Local Services - 10
	Reduce number of water main breaks (2014 baseline: Regional Water =1; Juan de Fuca = 12 (excluding 93 service lines breaks); Saanich Peninsula Water = 0; Local Services = 16)	Annual number of breaks by service area: Regional Water – 0; Juan de Fuca Water – 15; Saanich Peninsula Water – 0; Local Services – 10
Reduce number of field accidents with lost time – ( 2014 baseline = 8)	Annual number of accidents with lost time: 5	
2017	Complete annual planned maintenance on water and wastewater systems	96% completed annually
	Compliance with Island Health, Provincial and Federal drinking water health guidelines in all water service areas	Full compliance on health related limits 100% of time
	Compliance with wastewater system operating permits	Full compliance with operating permit conditions 100% of time
	Reduce number of unplanned wastewater overflows/bypasses annually (non-weather related)	Annual number of unplanned overflows/bypasses: 2
	Reduce number of unplanned interruptions to water service	Annual number of interruptions by service area: Regional Water – 0; Juan de Fuca Water – 10; Saanich Peninsula Water – 0; Local Services – 8
	Reduce number of water main breaks	Annual number of breaks by service area: Regional Water – 0; Juan de Fuca Water – 10; Saanich Peninsula Water – 0; Local Services – 8
Reduce number of field accidents with lost time	Annual number of accidents with lost time: 4	

	Service Goals	Performance Indicators
2018	<p>Complete annual planned maintenance on water and wastewater systems</p> <p>Compliance with Island Health, Provincial and Federal drinking water health guidelines in all water service areas</p> <p>Compliance with wastewater system operating permits</p> <p>Reduce number of unplanned wastewater overflows/bypasses annually (non-weather related)</p> <p>Reduce number of unplanned interruptions to water service</p> <p>Reduce number of water main breaks</p> <p>Reduce number of field accidents with lost time</p>	<p>98% completed annually</p> <p>Full compliance on health related limits 100% of time</p> <p>Full compliance with operating permit conditions 100% of time</p> <p>Annual number of unplanned overflows/bypasses: 1</p> <p>Annual number of interruptions by service area: Regional Water – 0; Juan de Fuca Water – 5; Saanich Peninsula Water – 0; Local Services - 6</p> <p>Annual number of breaks by service area: Regional Water – 0; Juan de Fuca Water – 5; Saanich Peninsula Water – 0; Local Services - 6</p> <p>Annual number of accidents with lost time: 3</p>
2019	<p>Complete annual planned maintenance on water and wastewater systems</p> <p>Compliance with Island Health, Provincial and Federal drinking water health guidelines in all water service areas</p> <p>Compliance with wastewater system operating permits</p> <p>Reduce number of unplanned wastewater overflows/bypasses annually (non-weather related)</p> <p>Reduce number of unplanned interruptions to water service</p> <p>Reduce number of water main breaks</p> <p>Reduce number of field accidents with lost time</p>	<p>100% completed annually</p> <p>Full compliance on health related limits 100% of time</p> <p>Full compliance with operating permit conditions 100% of time</p> <p>Annual number of unplanned overflows/bypasses: 0</p> <p>Annual number of interruptions by service area: Regional Water – 0; Juan de Fuca Water – 0; Saanich Peninsula Water – 0; Local Services - 4</p> <p>Annual number of breaks by service area: Regional Water – 0; Juan de Fuca Water – 0; Saanich Peninsula Water – 0; Local Services - 4</p> <p>Annual number of accidents with lost time: 2</p>

# Contact

**Name:** Vacant

**Title:** Senior Manager, Infrastructure Operations

**Contact information:** TBD

# Service Plan for Customer and Technical Services

2016-2019

Capital Regional District

*Date prepared: September 4, 2015*

*Date submitted:*



Making a difference...together

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# 1 Overview

## 1.1 Division & Service Summary

a) **General overview of the Division.**

Customer and Technical Services Division provide a range of services to support Integrated Water Services and other departments of the Capital Regional District, including:

- Central Fleet Management
- Maintenance Management
- Integrated Water Services Administrative Services
- Safety Advisor (including worker check)

Division staff includes qualified and experienced management, technical, safety and administrative staff.

b) **Service overview and descriptions.**

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p>Provide centralized administrative support to ensure administrative standards and staff needs are achieved. This is accomplished by</p> <ul style="list-style-type: none"> <li>• Administer record system to ensure that CRD policies and procedures are followed</li> <li>• Provision of accurate and timely document processing according to established policies, procedures and standards</li> <li>• Scheduling and recording meetings according to policies and procedures</li> <li>• Scheduling and tracking of compliance and professional development training courses and hours</li> </ul>	<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 (for all CTS programs)</p>

Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<p>Provide Centralized Fleet Management of over 300 vehicles and equipment to achieve a well maintained, compliant, economical and reliable CRD fleet. This is accomplished by</p> <ul style="list-style-type: none"> <li>• Manage the process of vehicle and equipment procurement and disposal to meet user needs and CRD climate action goals.</li> <li>• Define, manage, coordinate and record the preventive maintenance and repair programs for vehicles and equipment.</li> <li>• Monitor driver abstracts, review collisions, vehicle and driver files, perform commercial vehicle inspections and arrange training to provide a limited Fleet Safety program.</li> <li>• Data entry, review and reporting.</li> <li>• Draft fleet policy, procedures and standards to ensure reliability, safe use of CRD fleet and meet regulatory compliance.</li> </ul>	<p>CRD Departments</p>	<p>Internal recovery through allocations to IWS divisions and labour rates</p>	
<p>Provide Maintenance Management and purchase order processing to ensure assets are maintained, informed decisions are made, and work and costs are assigned. This is accomplished by</p> <ul style="list-style-type: none"> <li>• Ensuring data integrity and completeness for infrastructure and equipment data.</li> <li>• Work order (WO) creating, monitoring, correction and completing.</li> <li>• Preventative Maintenance (PM) plan creation and updating.</li> <li>• Process purchase orders.</li> <li>• Data entry, analysis and reporting</li> </ul>	<p>IWS Operations and Centralized Fleet section</p>	<p>Internal recoveries through allocations</p>	

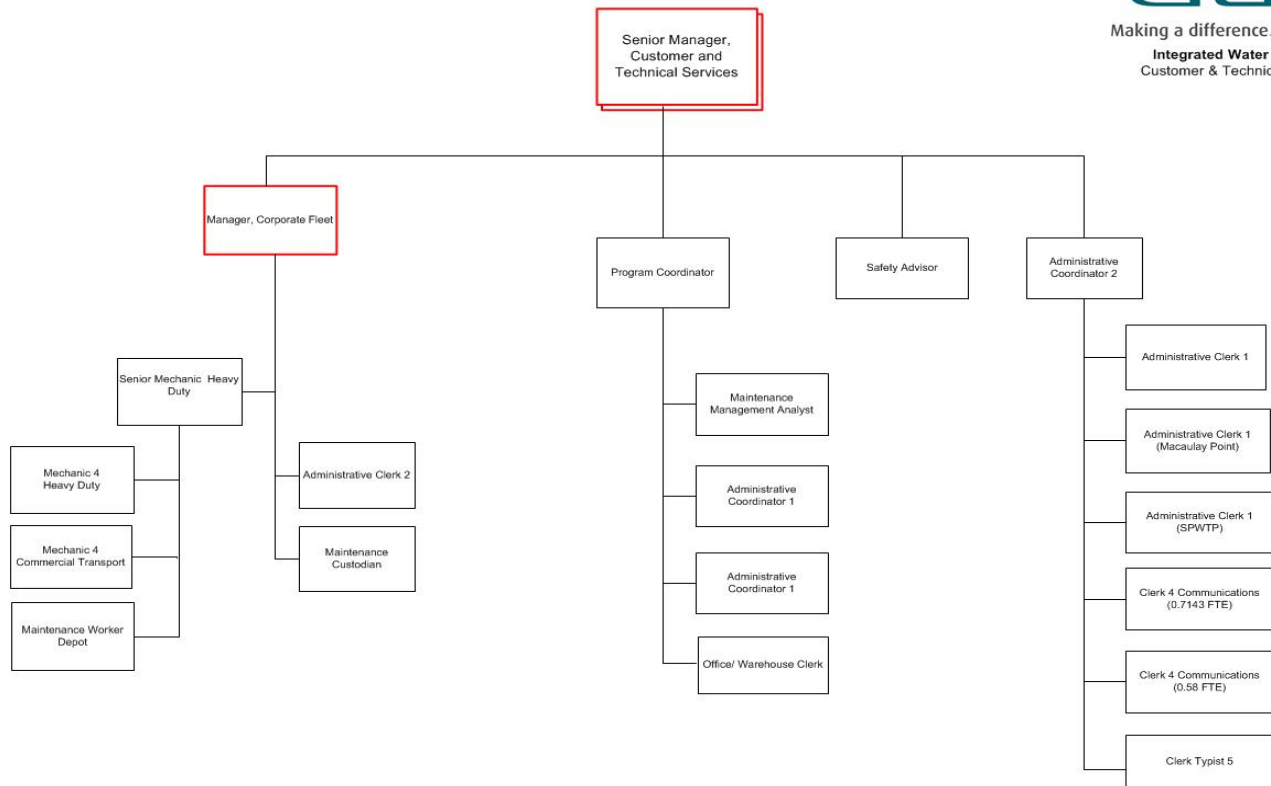
Service Purpose, Role or Overview	Participants	Funding Sources	CRD Board Committee and/or Commission Reporting Structure
<ul style="list-style-type: none"> <li>• Monitor user activities and data integrity</li> <li>• User support and training</li> </ul>			
<p>Provide Occupational Health and Safety support through the Safety Advisor to ensure required documentation is in place and informed decisions are made. This is accomplished by:</p> <ul style="list-style-type: none"> <li>• Developing policy and procedures.</li> <li>• Assisting in incident investigations and hazard assessments.</li> <li>• Attending JOH&amp;S meetings</li> <li>• Research OH&amp;S regulations, Workers Compensation Act and industry.</li> <li>• Complete required documentation for variances and other permits.</li> </ul>	CRD Departments	Internal recoveries through allocations	



## 1.2 Organization Chart



Making a difference...together  
**Integrated Water Services**  
 Customer & Technical Services



Updated by Human Resources  
 May 2015

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

### Central Administration:

- The trend is an increasing demand for administration support to maintain an increasing number of files resulting from improved documentation of information, actions and decisions across the operational and service areas, including:
  - Committee & Commission Support (23 services utility services under IWS) – staff report and meeting agenda preparation, meeting recording and minute preparation
  - Departmental Support - maintaining contract files, staff certification and training coordination, preparation of operating procedure, emergency response and safety management documentation

### Central Fleet Management:

- The trend 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. The present issue is that there are not enough resources in Fleet to meet this demand. A factor that impacts this increase in demand is the growth in the number of vehicles and equipment in the last 5 years. The number of units in which Fleet have a role to play has grown from approximately 130 to over 300, a recent example is the commercial vehicle inspections for Fire Departments and the provision of maintenance orders to the Parks Mechanic. The risk is that the annual audit by CVSE could result in an order being issued to CRD to become compliant. A recent example was the outcome of the audit in December of 2014 that resulted in the Parks Fleet regulatory responsibilities being transferred to Central Fleet to maintain compliance with the CVSE inspections and maintenance record keeping requirements.

- A strategic plan for CRD Central Fleet Management must be established to set out strategic goals in the areas of service delivery model and organizational roles and responsibilities, customer service, and fleet operational performance. The CFM strategic plan will align with the CRD Board strategic priorities particularly in the area of climate action, through setting plans and policy related to fuel management, fleet utilization and right-sizing, and 'green fleet' actions to reduce fleet GHG emissions.

#### **Maintenance Management:**

- 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 Maintenance Management staff. The most important issue that contributed to this shortage of resource is that when the Maintenance Management sections were combined in 2010 only one FTE was added to the existing Water Department staff compliment. The risk of continuing with an under resourced Maintenance Management section is the negative effect on data integrity, service to users, reliability of assets, decision making and staff motivation.
- The opportunity exists (with appropriate resourcing) to expand the service provided through the section to include other corporate assets.

#### **Safety Advisor - Occupational Health and Safety:**

- Ongoing changes to the requirements of the Workers Compensation Act and Occupational Health and Safety Regulations. These changes impact the work load of the Safety Advisor and load a financial burden on operating budgets which impact the available funds to perform work. The risk is that compliance could be sacrificed in favour of providing a minimum service to customers.
- In order to meet CVSE fleet safety and Worksafe BC fleet driver requirements it is proposed to incorporate a fleet safety program into the Safety Advisor portfolio. These additional program areas will include driver training and collision management.

## **1.4 Link to Board Strategic Priorities**

- Central Fleet Services:

Through the initiatives of vehicle selection, maintenance and fuel recording Central Fleet Services support the reduction in greenhouse gas emissions and the ability to improve the accuracy of measuring emissions. (objectives #1a,d)

- Maintenance Management Team:

Support Integrated Water Service Divisions by providing accurate and timely data to users for establishing best practices and processes to better the service needs of the region, support customer needs, promote efficiency and care and control of public assets.

## 2 Services

### 2.1 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>Centralized Administration</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> <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>	No change	No change	No change	No change
<b>Central 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 repairs.</li> <li>Provide a limited safety program of establishing driver records, provide driver training and collision review (at present 270 files for CRD drivers created of which 6% are complete)</li> </ul>	<p>Manage 100% of CRD fleet procurement and disposal</p> <p>No change</p> <p>Complete driver record setup and driver abstract review.</p>	<p>No change</p> <p>Manage 100% Perform 50%</p> <p>Maintain driver records and implement a fleet safety policy and program.</p>	<p>No change</p> <p>Manage 100% Perform 75%</p> <p>Achieve safety program compliance</p>	<p>No change</p> <p>Manage 100% Perform 75%</p> <p>Maintain compliance</p>

Service Level Adjustments in Role/Scope					
Service	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<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	No change
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Guidance and advice , research, site visits and procedure development</li> </ul>	No change	No change	No change	No change

## 2.2 Workforce Considerations

Service	Workforce (FTEs)				
	Base year 2015	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)	Year 4 (2019)
<b>Administrative Support</b>	7.29	7.29	7.29	7.29	7.29
<b>Fleet Services</b>	7	7	8	8	8
<b>Maintenance Management</b>	5	6	6	6	6
<b>Safety</b>	1	1	1	1	1
<b>Total</b>	20.29	21.29	22.29	22.29	22.29

### 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 related maintenance plans, provide transactional reports, monitoring and improve user support and documentation. This position will be essential to ensure the backlog of 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

#### **Mechanic 2**

*Industry standard mechanic ratio is about 45 vehicles per mechanic. CRD fleet is operating at a ratio of 103/1. (Parks & IWS facilities) Facility at IWS is a 4 bay garage with 2 mechanics and is underutilized. Additional FTE required.*

# 3 Divisional Initiatives & Budget Implications

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>2016</b>			
<b>Centralized Fleet - Maintenance study</b>	Under take a study of industry practices to optimize best practices for CRD fleet maintenance.	Climate action – well maintained assets operate more efficiently	\$60,000 single supplementary
<b>Centralized Fleet - Implement fleet management software</b>	To facilitate all aspects of fleet management in one platform. Review Fleet requirements and ability of existing ERP system to meet the needs.		\$150,000 capital project
<b>Centralized Fleet - Fleet Card (fuel/maintenance)</b>	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 – measure true fuel use for accurate GHG reporting, and maintenance/financial records	\$25,000 set up costs single supplementary and \$3.25 per month per vehicle continuous supplementary.
<b>Maintenance Management – Creation and maintenance of maintenance plans and user support</b>  <b>Completion - ongoing</b>	<p>The maintenance management clerks are responsible to ensure that each of the 5 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 action – well maintained assets operate efficiently	\$80,000 continuous supplementary (1 x FTE for new Maintenance Management Clerk)

Title & Estimated Completion Date	Description	Board Strategic Priority Reference (if applicable)	Budget Implications
<b>National Water and Wastewater Benchmarking Initiative (NWWBI)</b>  <b>Ongoing initiative</b>	Benchmark the Regional Water System and Juan De Fuca Distribution system to 45 utilities across Canada. 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.	Climate action – identify areas for improvement	Core Budget
<b>2017</b>			
<b>Maintenance Management – Asset data and maintenance plans</b>	Capture and enter all data associated with critical IWS equipment, and associating preventative Maintenance scheduling (1,500hrs of combined backlog)	Climate action – well maintained assets use less power	Core budget (\$15,000 Labour allocation from IWS Ops to collect data and auxiliary resource to enter data)
<b>Hire additional Fleet Mechanic 2</b>	To optimize maintenance costs and reduce reliance on external service providers resulting in increased level of service for internal customers		\$90,000 continuous supplementary
<b>2018</b>			
<b>Centralized Fleet – Implement a Fleet Safety Program.</b>	Design, implement and administer a Fleet Safety Program to ensure vehicle and driver records and training meet regulatory compliance.		Funding requirements TBD following 2016 Fleet Safety Program Review
<b>2019</b>			

## 4 Goals & Performance Indicators

	Service Goals	Performance Indicators
<b>2016</b>	Complete update to CRD Central Fleet Policies and Strategic Plan	Documentation complete and implemented across organization by Q2.
	In collaboration with CRD Climate Action staff and in alignment with corporate climate action objectives, reduce fleet GHG emissions through: <ul style="list-style-type: none"> <li>Reducing vehicle life cycle costs</li> <li>Reducing fuel consumption</li> <li>Vehicle right sizing</li> </ul>	Determine and set 2017-2019 levels in 2016 to meet 2020 Corporate GHG reduction level (33% reduction from 2007 levels by 2020 – CRD Fleet contributes to 29% of Corporate GHG emissions)
	In collaboration with CRD Climate Action staff and in alignment with corporate climate action objectives, review energy use in buildings with the intention to reduce GHG emissions	Determine and set 2017-2019 levels in 2016 to meet 2020 Corporate GHG level for buildings
	To measure the level (2015 benchmark) of administrative and business process documentation for CTS divisional support to the IWS department	Determine and set 2016-2017 benchmark to achieve the 2018 performance goal
<b>2017</b>	Measure customer satisfaction with Administration, Centralized Fleet, Maintenance Management and Safety	Set goals in place to ensure a positive trend in customer feedback is measured in 2019.
<b>2018</b>	Improve administrative and business process documentation for CTS division support to the IWS department; benchmark 60% (2015)	Have documentation (operating procedures) in place and update for at least 80% of processes.
<b>2019</b>	Customer satisfaction with Administration, Centralized Fleet, Maintenance Management and Safety	Positive trend in customer feedback.

### Contact

Name: Jan van Niekerk  
 Title: Senior Manager, Customer and Technical Services  
 Contact information: 250- 474-9655

# CRD Board Strategic Priorities 2015-2018 – At A Glance

Priority Area	NOW: Current Budget & Service Plans	NEXT: To be incorporated into 2016/2017 Service Plans & Budgets	LATER: Future Considerations 2018+
1. Climate Change	1a. Provide a climate lens for Board decision making.		
	1b. Advocate to senior levels of government for programs and regulations to reduce emissions and/or prepare for climate change.		
	1c. Pursue strategic partnerships to help achieve community mitigation and adaptation targets.		
		1d. Accelerate corporate mitigation and adaptation activities.	
2. Integrated Waste Management	2a. Acquire additional expertise on technologies and solutions (including centralized/ decentralized approaches and gasification) to liquid and solid waste treatment.		
	2b. Investigate region-wide solutions to liquid and solid waste.		
	2c. Establish a systematic process of evaluation for all liquid waste and solid waste decisions.		
	2d. Investigate combined liquid and solid waste management plans.		
	2e. Ensure responsible management of waste water for the entire capital region.		
3. Active & Multi-Modal Transportation	3a. Advocate for regional transit priorities to the Victoria Regional Transit Commission.		
	3b. Pursue CRD Transportation Service role (includes public transit and regional trails).		
	3c. Further Investigate Southern Gulf Island and Salt Spring Island water based passenger services.		
	3d. Design and manage regional trails as transportation corridors for users now and in the future.		
		3e. Enable the CRD, local governments and other agencies to advance active transportation infrastructure and programming (including active & safe routes to school).	
4. Agricultural Land & Food Security	4a. Establish educational programming to promote local food and its benefits.		
	4b. Enable others and advocate for supportive agricultural programs and policies by provincial and federal governments.		
		4c. Work with partners to find a solution to lack of abattoir, and other related farming infrastructure, in the region or on the island.	
		4d. Develop a regional agricultural land banking solution.	
		4e. Establish additional incentives and new policies to promote and encourage farming in the region.	
			4f. Develop policies to support Agri-Tourism.
5. Changing Demographics	5a. Complete the Community Health & Well Being Plan and determine appropriate roles for CRD in its implementation.		
	5b. CRD to work with partners to establish a universally accepted definition of "seniors" for purposes of recreational programming alignment.		
		5c. Advocate to senior levels of government for age-friendly programs and policies.	
6. First Nations	6a. Organize Board training and education on First Nations' traditions, culture, history, and approaches.		
	6b. Explore feasibility of establishing a First Nations hunting protocol in CRD lands in recognition of the Douglas Treaty.		
	6c. Investigate ways to best support First Nations economic development activities in co-operation with local government partners.		
7. Governance	7a. Determine the role of the CRD in current governance conversations across the region.		
	7b. Establish a Board self-evaluation process.		
	7c. Complete the work of the Special Task Force on First Nations engagement.		
	7d. Support regional and sub-regional dialogues between the general public, municipalities, electoral areas, First Nations and the CRD.		
	7e. Recognize and support the self governance and equality of the three electoral areas.		
		7f. Review and establish a governance model which encourages exemplary decision making and includes regular Board education and inter-jurisdictional collaboration.	
		7g. Establish regular two way engagement opportunities with the public and within the organization using innovative approaches and technologies.	



# CRD Board Strategic Priorities 2015-2018 – At A Glance

Priority Area	NOW: Current Budget & Service Plans	NEXT: To be incorporated into 2016/2017 Service Plans & Budgets	LATER: Future Considerations 2018+
8. Public Engagement & Communications	8a. Share stories of collaboration & accomplishments across the organization and region.		
	8b. Set targets and measure effectiveness of CRD engagement activities.		
	8c. Deploy comprehensive communication strategies to encourage two-way dialogue with the public on major CRD Board decisions and bylaw changes.		
		8d. Establish regular two way engagement opportunities with the public and within the organization using innovative approaches and technologies.	
9. Housing	9a. Complete the Capital Region Housing Corporation Long Term Financial & Asset Management Plan.		
	9b. Examine an increase in the size of the Regional Housing Trust Fund and encourage participation by all municipalities, electoral areas and First Nations.		
	9c. Develop a standardized regional definition of “affordable” and “attainable.”		
		9d. Leverage equity in all CRD assets (CRD, CRHC, CRHD) to develop creative solutions to providing new housing.	
		9e. Support regional housing goals by sharing emerging practices and encouraging creative solutions within the Capital Region Housing Corporation, municipalities, electoral areas and other partners.	
			9f. Establish the CRD as the overarching planning and coordinating body.
10. Land Use Planning	10a. Complete the Regional Growth Strategy (Regional Sustainability Strategy).		
11. Economic Development	11a. Advocate to senior levels of government to support major multi-modal transportation projects which encourage economic development.		
	11b. Work with municipalities, electoral areas and partners to develop a comprehensive arts and culture strategy.		
			11c. Explore a funding mechanism to support existing agencies like the Greater Victoria Economic Development Agency.
12. Biodiversity & Ecosystem Health	12a. Determine future CRD role in regional wildlife management (fallow deer, bullfrogs, geese, etc.).		
	12b. Work with partners to open the Sea to Sea Park.		
	12c. Advocate to provincial and federal governments to maintain and fulfill their roles to protect biodiversity.		
		12d. Strategically acquire protected areas which contribute to climate mitigation and adaptation goals.	
			12e. Showcase best practices for managing invasive species on CRD lands.

# Board Strategic Priorities 2015 – 2018

## Desired Outcome Statements & Roles for CRD

### CLIMATE CHANGE

*Desired Outcome:* Reduced regional greenhouse gas emissions and increased resiliency to climate impacts.

*Role of CRD:* The CRD will help to reduce greenhouse gas emissions and adapt to climate change by supporting municipalities and through corporate decisions, citizen awareness and agency partnerships

### INTEGRATED WASTE MANAGEMENT

*Desired Outcome:* Triple bottom line solutions to managing liquid and solid waste in the region.

*Role of CRD:* The CRD will develop systems which provide an innovative and optimized approach to managing solid and liquid waste as resources.

### ACTIVE & MULTI-MODAL TRANSPORTATION

*Desired Outcome:* Better coordinated multi-modal transportation systems with reduced greenhouse gas emissions.

*Role of CRD:* The CRD will collaborate with partners to advance regional transportation priorities.

### AGRICULTURAL LAND & FOOD SECURITY

*Desired Outcome:* Enhanced conditions to support agricultural production and distribution as well as farm viability

*Role of CRD:* The CRD will work with partners to support the protection of agricultural land and promote increased food security for the region.

### CHANGING DEMOGRAPHICS

*Desired Outcome:* Enhanced partnerships and infrastructure that supports the changing population and demographics in the region.

*Role of CRD:* The CRD will support a region for all ages through programs and services that promote healthy, active lifestyles.

### FIRST NATIONS

*Desired Outcome:* Enhanced relationships and effective service delivery between CRD and First Nations.

*Role of CRD:* The CRD will engage with First Nations in activities and services in areas of common interest

## GOVERNANCE

*Desired Outcome:* Effective regional governance structure and increased public participation

*Role of CRD:* The CRD will pursue policy, practices and process changes to best meet its broad mandate (including role as the Local Government for electoral areas), strategic challenges and service needs of the region.

## PUBLIC ENGAGEMENT & COMMUNICATIONS

*Desired Outcome:* Open and transparent processes with increased public participation.

*Role of CRD:* The CRD will regularly inform and engage the public, stakeholders and other governments to gain ideas and feedback and build support.

## HOUSING

*Desired Outcome:* An increased supply of attainable and affordable housing which meets the diverse needs of people in the region.

*Role of CRD:* The CRD will act as a resource for developing and implementing strategies which demonstrate leadership, build partnerships, and provide support in order to increase the supply of affordable housing

## LAND USE PLANNING

*Desired Outcome:* Long term land use patterns that support sustainable development and protect rural integrity

*Role of CRD:* The CRD will adopt and implement a regional growth strategy (Regional Sustainability Strategy) and electoral area land use plans.

## ECONOMIC DEVELOPMENT

*Desired Outcome:* To attract and retain investments which benefit the regional economy.

*Role of CRD:* The CRD will promote and highlight economic impacts of regional investments and services.

## BIODIVERSITY & ECOSYSTEM HEALTH

*Draft Desired Outcome:* Increased health and function of regional ecosystems for people and wildlife.

*Role of CRD:* The CRD will pursue opportunities to protect urban and rural natural areas while providing management and stewardship of sensitive ecosystems within its portfolio of parks and other land holdings.

**REPORT TO THE JUAN DE FUCA WATER DISTRIBUTION COMMISSION  
MEETING OF TUESDAY, OCTOBER 6, 2015**

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**SUBJECT    2016 CAPITAL AND OPERATING BUDGET**

**ISSUE**

The purpose of the report is to provide an overview of the 2016 Juan de Fuca Water Distribution 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**

Rate Base

The rate base for 2016 has increased by \$6,520,579 which primarily reflects the value of new physical plant (infrastructure) additions associated with the continuing development in the service area, the water main replacement program, and fire flow upgrade program, net of the accumulated annual asset depreciation value (Pages 2 & 3 of the budget document).

Revenue Requirement

The revenue requirement for 2016 has increased by \$698,991. This is primarily the net result from an increase in operational expenses of \$99,000, increased depreciation expenses of \$162,986, net of expired depreciation on existing assets, and an increase in the return on the rate base of \$384,000, due to changes in physical plant, debt ratios and capital transfers (Pages 4 & 5 of the budget document).

Operating Budget

The 2016 operating budget reflects an increase in non-discretionary expenses such as negotiated wage/salary increases, departmental support service allocation increases, maintenance expense increases due to new infrastructure additions, and other operating expense increases such as electricity costs. The net 2016 operating budget increase is \$99,000 (Pages 5 & 23 of the budget document). The addition of new assets due to development and infrastructure renewal program continued in 2015, resulting in new infrastructure being brought into service, requiring operation and maintenance.

Capital Budget

With increasing pressure on the retail water rate resulting from wholesale water rate increases, demand fluctuations in the service area and a trend of increasing debt servicing costs associated with prior and future year capital projects funded from debt, a further review of the five year capital was conducted this year. To maintain moderate water rate increases in the coming years, a further reduction in the five year capital expenditures, which corresponds with decreased debt servicing expenditures, was made. The 2016-2020 capital plan has been prepared with \$23.13 million in planned expenditures over five years, a further reduction over the 2015-2019 plan, which was valued at \$26.89 million. This reduction in capital expenditure results in a further \$838,000 reduction in debt servicing (principal and interest payments) over

the five year period. The proposed, capital program continues to address the highest priority capital projects, including an on-going small diameter asbestos cement/cast iron water main replacement program and a second phase of fire flow upgrades, but defers some projects beyond 2019/2020, including reservoir storage improvements, pump station upgrades, and the residential meter replacement program.

The 2016 capital plan contains a number of projects with a total value of \$5.21 million, plus \$625,000 in projects cost shared with the Regional Water Supply service. The major expenditures in 2016 include the continuation of the annual small diameter water main replacement program (\$835,000), year five of the five year fire flow upgrade (\$1.880 million), and a new capital allowance for water service line replacements on demand (\$300,000) (Pages 9-21 of the budget document).

In addition, there is one project planned for 2016 under the Development Cost Charge (DCC) program; that is to complete the review and update of the DCC program, projects, bylaw and rates. The timing of other DCC projects under the program is tentative and is dependent on when development projects proceed.

#### Capital and Debt Expenditures

The 2016 capital expenditures will be partially funded through a transfer to the water capital fund budgeted at \$3,139,673, with the balance funded through debt. 2016 debt expenditures for existing and new debt servicing are budgeted to be \$1,669,908. The long term debt obligations are summarized on the attached graphs (**Attachment 2**). A new loan authorization was approved in 2015 to allow borrowing to partially fund the five year capital plan.

Although the planned 2015 vehicle/equipment replacement fund contribution was eliminated to help mitigate the 2015 rate increase, a \$268,650 transfer to the fund is planned in 2016.

The DCC projects will be funded entirely from the DCC reserve fund.

#### Bulk Water Purchase

Based on the proposed 2016 budgeted water demand and Regional Water Supply wholesale water rate, the bulk water purchase budget has been set at \$4,915,125.

#### Water Demand

Water demand in the service area continues to typically decline when looking at year-over-year figures on a monthly basis, largely influenced by less indoor consumption related to low flow fixtures and high efficiency appliances. However, due to increased demand resulting from unseasonal warm and dry weather this past spring and summer, the actual demand this year is projected to exceed the budget demand. A 2014/2015, January-August demand summary is attached (**Attachment 3**) for information. In 2015, the budgeted demand is 7,710,000 cubic metres and the actual demand is projected to be 8,343,553 cubic metres. The proposed 2016 retail water rate has been calculated using a budget demand of 7,710,000 cubic metres, which is the same as the 2015 budgeted demand (Page 6 of the budget document).

Proposed 2016 Wholesale Water Rate

The proposed 2016 wholesale water rate is \$0.6375 per cubic metre, subject to the Regional Water Supply Commission's approval. Currently, the wholesale rate accounts for approximately 35% of the retail rate.

Proposed Agricultural Water Rate

The proposed 2016 agricultural water rate has been maintained at the 2015 rate of \$0.2105 per cubic metre, subject to the Regional Water Supply Commission's approval. The Regional Water Supply agricultural water rate budget funds the difference between the municipal retail water rate and the agricultural water rate.

Proposed 2016 Retail Water Rate

The proposed retail water rate is \$1.9129 per cubic metre, an increase of \$0.1028 per cubic metre, or 5.68%. The rate increase primarily reflects the increase in the operations expenditures, capital expenditures and transfers, and an increase in the wholesale rate. As a result, the cost to the average household will increase by approximately \$24.06 per annum (Page 7 of the budget document).

Five Year Retail Water Rate Projection

A five year retail water rate projection has been prepared and is attached (**Attachment 4**). The rate projection has been based on five year revenue and expenditure projections, stable demand volumes and projected wholesale water rates.

**RECOMMENDATION**

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

1. Approve the 2016 operating and capital budget;
2. Approve the 2016 retail water rate of \$1.9129 per cubic metre, adjusted if necessary by any change in the Regional Water Supply wholesale water rate; and
3. Amend the Water Distribution Local Service Conditions, Fees and Charges Bylaw accordingly.



Ted Robbins, B.Sc., C.Tech.  
General Manager, Integrated Water Services

TR:mm  
Attachments: 4

# **CAPITAL REGIONAL DISTRICT**

## **2016 BUDGET**

### **Juan de Fuca Water Distribution Commission**

#### **COMMISSION REVIEW**

**Attachment 1**

October, 2015

**Service: 2.680 JDF Water Distribution**

**Commission: Juan De Fuca Water Distribution**

**DEFINITION:**

To finance the administration, development, maintenance, and operational expenses, of the Juan de Fuca Water Distribution local service in the Western Communities of the Capital Regional District, as per the Water Distribution Local Service Area Establishment Bylaw No. 2538.

The establishment and operation of a Juan de Fuca water Distribution Commission is done by Bylaw No. 2540.

**SERVICE DESCRIPTION:**

Juan de Fuca Water Distribution Service - retail water distribution system providing water to Western Communities. The service administration and operation is provided by the Integrated Water Services Department.

**PARTICIPATION:**

City of Colwood	District of Metchosis
City of Langford	District of Sooke
Town of View Royal	District of Highlands
Juan de Fuca Electoral Area	

**MAXIMUM LEVY:**

The maximum amount that may be requisitioned is NIL.

**MAXIMUM CAPITAL DEBT:**

Authorized:	\$19,000,000 Pre - (Consolidated MFA Loan Authorizations - Juan de Fuca Water Distribution Facilities)
Borrowed:	\$17,500,000 Pre - (Consolidated amounts borrowed - Juan de Fuca Water Distribution Facilities)
Expired:	\$1,500,000
Authorized:	\$14,800,000 2015 - (MFA Bylaw No. 3981 Juan de Fuca Water Distribution Facilities)
Borrowed:	-
Remaining:	\$14,800,000
Authorized:	\$10,000,000 DCC - (MFA Bylaw No. 3164 Juan de Fuca Water Distribution Facilities Development-DCC)
Borrowed:	\$3,500,000 DCC - (MFA Bylaw No. 3164 Juan de Fuca Water Distribution Facilities Development-DCC)
Expired:	\$6,500,000

**FUNDING:**

Water Revenue and transfer from DCC reserves to service DCC debt.



## Rate Base for 2016 Revenue Year

	2014 Applic	2015 Applic	End of 2015 for '16 Applic.	Change	
<b>Retail System</b>					
Physical Plant	\$ 129,342,390	\$ 136,800,543	\$ 142,629,920	\$ 5,829,377	Note 1
Construction Work In Progress	4,118,120	4,435,840	5,114,836	678,996	Note 1
Cash Working Capital	613,028	625,944	638,149	12,205	
Inventory	525,000	525,000	525,000	-	
<b>Total Retail Rate Base</b>	<b>\$ 134,598,538</b>	<b>\$ 142,387,327</b>	<b>\$ 148,907,905</b>	<b>\$ 6,520,579</b>	

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**

**Retail**

Projected Asset Additions	Projected Assets Capitalized
Pipes	\$ 6,723,433
Pump Station Equipment & valves	1,120,808
Meters	297,042
Reservoir Decommissions	241,175
Vehicles	220,000
Computer Upgrades & Office equipment	214,083
Building improvement	135,305
Studies (Fire flow & volume storage, Meters, DCC etc)	102,961
Hydrant	90,178
Other (sum of minor projects)	98,255
Total projected assets capitalized	\$ 9,243,240
Change resulting from prior yr disposals, projected asset addition estimates & accumulated depreciation	(3,413,863)
Change in Physical Plant	\$ 5,829,377

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

Pipes	\$ 2,456,574
Pump Stations & equipment	2,035,004
Pump Station & other assessments	155,000
Scada	145,866
Reservoir & pressure improvements	145,736
Fencing	127,336
Computers & software enhancements	39,320
Other(sum of minor projects)	10,000
Projected CWIP	\$ 5,114,836
Less Prior years projected CWIP	(4,435,840)
Change in CWIP	\$ 678,996

## Revenue Requirements for 2016 Year

	2014	2015	2016	
	Application	Application	Application	Change
<b>Retail</b>				
Operations & maintenance	\$ 4,972,338	\$ 5,077,098	\$ 5,176,098	\$ 99,000 Note 1
Depreciation	3,822,077	3,933,576	4,096,563	162,986
Return on rate base	<u>1,040,600</u>	<u>630,500</u>	<u>1,014,500</u>	<u>384,000</u> Note 2
Subtotal of above	\$ 9,835,015	\$ 9,641,174	\$ 10,287,161	\$ 645,986
Non-rate revenue	(178,500)	(178,500)	(170,000)	8,500
DCC Repayment	<u>(329,000)</u>	<u>(329,000)</u>	<u>(284,495)</u>	<u>44,505</u> Note 3
Total retail	\$ 9,327,515	\$ 9,133,674	\$ 9,832,666	\$ 698,991

Note 1: Refer to Justification of Revenue Requirements page for details

Note 2: Return on rate base is calculated using the long term Canada bond rate & the average debt rate.

Note 3: Transfer from DCC reserves dropped due to drop in DCC debt servicing costs.

**Summary of Revenue Requirement Increases - 2016**

<b>Retail</b>		
Increase in depreciation, due to increase in capital assets (Refer to Schedule of Change in Physical Plant and Work in Progress)		\$ 162,986
Increase in return on rate base is due to changes to physical plant, work in progress, inventory, working capital, debt & transfers to capital.		384,000
<b>Sub-Total</b>		<u>\$ 546,986</u>
<b>Change in Operating Expenditures Budget</b>		
- 2015 budget application less bulk water purchases	\$ 5,077,098	
- 2016 continuous/single supplementary	-	
- Increase in 2016 board budget excluding supplementaries	99,000	
- 2016 budget application excluding bulk water purchases	<u>\$ 5,176,098</u>	
<b>Net change (increase) in Operating Expenditures Budget</b>		<b>99,000</b>
Decrease in non-rate revenue		8,500
Decrease in Transfer from DCC Reserves due to drop in DCC debt servicing costs		44,505
<b>Total Change in Revenue Requirement</b>		<u><u>\$ 698,991</u></u>

## 2016 Demand Estimate

Retail Demand	Years	Actual Demand cu.metre	Budgeted Demand cu.metre
	2010	8,161,729	8,651,000
	2011	8,014,131	8,575,000
	2012	8,016,147	8,489,000
	2013	7,810,360	8,088,000
	2014	8,164,289	7,840,000

5 Year Average Demand 2010-2014\*

8,033,000

2016 Demand Estimate

7,710,000

\* Note: Over the previous years the 5 year average demand used in the rate calculations was adjusted to align with actual trend of lower water use. A volume of 7,710,000 cu.m has been used for the calculation of 2016 retail water rate, which is the same as last years 2015 budgeted volume.

Note:

<i>Current year -2015 budgeted volume</i>	7,710,000 cu.m
<i>Projected 2015 actual volume</i>	<u>8,343,553</u>
Difference	<u>633,553 cu.m</u>

**Summary of Retail Water Rates**

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Change</u>
<b>Retail (direct) water rate</b>					
Unit cost per cu.m.	\$1.7032	\$1.7892	\$1.8101	\$1.9129	\$0.1028

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

Average consumption per 2 month billing cycle: \* 39.0 cubic meters (annual = 234.0 cu.m)

	Year		Bi monthly Charge		2016 Annual Charge \$	
	2015	2016	2015	2016	2016	2016
<b>Charge for Two Months Consumption</b>						
Average Consumption	\$ 70.59	\$ 74.60	\$ 70.59	\$ 74.60	\$ 423.56	\$ 447.62
Half Average Consumption	\$ 35.30	\$ 37.30	\$ 35.30	\$ 37.30	\$ 211.78	\$ 223.81
Twice Average Consumption	\$ 141.19	\$ 149.21	\$ 141.19	\$ 149.21	\$ 847.13	\$ 895.24
						\$ 48.11

Schedule A  
Asset Useful Life Assignments - PSAB

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

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

CAPITAL REGIONAL DISTRICT  
 2016 - ANNUAL CAPITAL BUDGET - JDF WATER DISTRIBUTION SYSTEM (See 2.680)  
 (\$'000 - 2016 DOLLARS)

Shading Denotes New Item	Carry Over	2016	2017	2018	2019	2020	5 yr Total (including Carry-over)	Projected Completion Cost
<b>SYSTEM REPLACEMENT AND UPGRADING</b>								
<b>Implementation - Infrastructure Engineering and Operations</b>								
1		835	1,500	1,250	1,250	1,250	6,085	
2	1,100						1,100	2,500
3		200	800				800	800
4		200	0	1,100	1,100		2,400	2,400
5	500	1,880					2,380	9,400
6	100	750					850	1,000
7		0	0	0	0	250	250	
8	200		50	100	500	500	1,300	1,700
9							50	50
10	50	100	500	500	250	250	1,650	2,650
11		25					25	25
12			100				100	100
<b>Planning - Infrastructure Engineering and Operations</b>								
13	100						100	
14		100	100				200	200
15		50					50	50
16		20	20	20	20	20	100	100
17		100	50				150	300
	2,050	4,050	3,120	2,970	3,120	2,270	17,590	
18		300	0	40	180	250	770	
	0	300	0	40	180	250	770	
<b>ANNUAL PROVISIONAL ITEMS</b>								
19		10	10	10	10	10	50	
20		300	300	300	300	300	1,500	
21		100	100	100	100	100	500	
22		60	60	60	60	60	300	
23		70	70	70	70	70	350	
24		0	130	130	130	130	520	
25		40	40	40	40	40	200	
26		60	60	60	60	60	300	
27		150	150	150	150	150	750	
28		60	60	60	60	60	300	
		850	980	980	980	980	4,770	
<b>TOTAL SYSTEM UPGRADING VEHICLES AND PROVISIONAL ITEMS</b>								
	2,050	5,210	4,100	3,990	4,280	3,500	23,130	



CAPITAL REGIONAL DISTRICT  
 2016 - 5 YEAR CAPITAL BUDGET - JDF WATER DISTRIBUTION SYSTEM (Service 2.680)  
 (\$'000 - 2016 DOLLARS)

Shading Denotes New Item	Carry Over	2016	2017	2018	2019	2020	5 yr Total (including Carry-over)	Projected Completion Cost
<b>DEVELOPMENT COST CHARGE (DCC) PROGRAM (Dependent on Growth - Timing Tentative)</b>								
<b>System Expansion by CRD Forces</b>								
29 Update DCC Bylaw (Comprehensive Update in 2016)		150	10	10	10	10	190	
30 VMP Pump Station - Sooke Rd at Veterans Memorial Pkwy	550						550	2,017
31 Property Purchase Waifred Reservoir	150						150	150
<b>System Expansion by Developers</b>								
32 Throug Road - 515m of 500mm Pipe							0	780
<b>TOTAL - FUNDED FROM DCC RESERVES</b>	<b>700</b>	<b>150</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>890</b>	

**CAPITAL REGION WATER SUPPLY  
2016 - 5 YEAR CAPITAL BUDGET - ALLOCATE SUPPLY/DISTRIBUTION  
(\$'000 - 2016 DOLLARS)**

(Services 2.670/2.680)

	Carry over	2016	2017	2018	2019	2020	5 yr Total (including Carry-over)	Projected Completion Cost
<b>Bold Denotes new item</b>								
1	100						100	200
2		110	50	50	50	50	310	460
3	25						25	25
4	25						25	25
5	50						50	50
6			15	400			415	415
<b>Sub-Total</b>	<b>200</b>	<b>110</b>	<b>65</b>	<b>450</b>	<b>50</b>	<b>50</b>	<b>925</b>	

<b>ANNUAL PROVISIONAL CAPITAL ITEMS</b>								
7		35	35	35	35	35	175	
8		30	30	30	30	30	150	
9		175	175	175	175	175	875	
10		20	20	20	20	20	100	
		150	0	0	0	0	150	
12		65	40	40	40	40	225	
13		40	15	15	15	15	100	
<b>Sub-Total for Annual Provisional Capital Items</b>	<b>0</b>	<b>515</b>	<b>315</b>	<b>315</b>	<b>315</b>	<b>315</b>	<b>1,775</b>	

<b>TOTAL</b>	<b>200</b>	<b>625</b>	<b>380</b>	<b>765</b>	<b>365</b>	<b>365</b>	<b>2,700</b>	
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CAPITAL BUDGET

Notes:

Line numbers refer to the Capital Budget documents. **Bold paragraph** indicates a new item.

- #1 Annual Small Diameter Pipe Replacement Program (2016-20, budget amount varies each year due to workload) ..... \$6,085,000  
**This item is the 2016 - 2020 program for replacement of the water mains identified in the Water Main Upgrading and Replacement Program. All mains were assessed for such criteria as age, pipe material, record of leaks and hydraulic adequacy, and a long-term replacement program was developed. The program has been underway since 1997.**
  
- #2 Sooke Rd. Phase 1 – 1,200m of 600mm dia. Pipe – Wishart to Cecil Blogg (\$1,100,000 carry over)..... \$2,500,000  
**According to a corrosion assessment, a 2.2 kilometre section of an existing steel pipe along Sooke Road and Allendale Road (between Wishart to Jacklin) was unprotected and in need of replacement. In 2014, the design of both phases of the water main was completed by a consultant and construction of the main from Wishart to VMP was completed by CRD resources. The balance of Phase 1 construction is due to be completed in 2016.**
  
- #3 Sooke Rd. Phase 2 – 1,000m of 600mm dia. Pipe – Cecil Blogg to Jacklin (\$800,000 in 2017) ..... \$800,000  
**As described above, a cost estimate based on the detailed design indicated that additional funding of \$800,000 was required to complete this project. Phase 2 will be constructed by CRD resources.**
  
- #4 Jacklin Rd. - 900m of 600mm dia. Pipe (\$200,000 in 2016, \$1,100,000 in 2018, \$1,100,000 in 2019) ..... \$2,400,000  
**According to a corrosion assessment, this 900m section of steel pipe is unprotected and needs to be replaced. Design will occur in 2016, with construction following in years 2018 and 2019.**
  
- #5 5 Year Accelerated Fire Upgrade Program (\$500K carry over, \$1.88m in 2016) ..... \$9,400,000  
**This item is the 2012 - 2016 program for replacement of the water mains identified in the Accelerated Fire Upgrade Program.**
  
- #6 Sun River Reservoir Rehabilitation (\$100,000 carry over, \$750,000 in 2016) ..... \$850,000  
**The Sun River reservoir is experiencing leakage through concrete form tie holes as a result of the original construction process. It was originally estimated that \$250K would be needed to rehabilitate the two cells of the reservoir in 2014, but investigations indicated that geotechnical and structural problems were also present. An additional \$750,000 of funding in 2016 is requested to solve these new problems.**

- #7 Residential Meter Replacement (\$250,000 each year, starting in 2020) ..... \$250,000  
 A July 8, 2014 staff report analyzed the results of testing performed on existing residential meters and recommended a sustainable meter replacement program due to start in 2020 subject to available capital funding.
  
- #8 Comprehensive Pump Station Upgrades (10 Year Plan) (\$200K carry over, \$100K in 2018, \$500K 2019-2020) ..... \$1,300,000  
 A previous capital project was completed by Delcan Corp. in 2012 which assessed each existing pump station and identified building deficiencies. This study concluded that on average approximately \$1.0M per year for the next ten years is needed to upgrade existing pump stations. A review of system hydraulics, electrical/mechanical issues and backup power is due to be completed in 2016, which will advise the proposed Strategic Asset Management Plan proposed for 2016 in order to arrive at a comprehensive plan for system upgrades. The carryforward amount of \$200,000 allows for completion of the review.
  
- #9 Water Line in Sooke Basin – Inspection (\$50,000 in 2017)..... \$50,000  
 The HDPE water main under the Sooke Basin is inspected every 5 years by a certified diver to ensure good condition. The last inspection was in 2012.
  
- #10 Fire Flow Upgrade Program Phase 2 Volume/Flow Upgrade Program Review (\$50k carry over, \$100k in 2016, \$500k in 2017 & 2018, & \$250k in 2019)..... \$1,650,000  
 In order to meet Fire Underwriters Survey recommendations for fire protection, it is necessary to provide certain volumes of water storage. It is proposed to assess fire storage volume requirements for different parts of the system and determine any required upgrades. It is proposed to complete the study aspects in 2016, followed by subsequent years of reservoir construction starting in 2017 as required. This will be combined with a review of the 5-year accelerated fire flow pipe upgrade program to produce a comprehensive fire upgrade program (flow, volume and pressure). The results of this review will advise the Strategic Asset Management Plan proposed for 2016 in order to arrive at a comprehensive plan for system upgrades.
  
- #11 Facilities Asbestos Assessment (2016) ..... \$25,000  
 Specific requirements for protecting workers and contractors from hazardous materials in BC are set out in the Occupational Health and Safety Regulation (OHSR) for asbestos. It is proposed to do a hazardous substance assessment (asbestos) for the Juan de Fuca water distribution facilities in 2016.
  
- #12 Sooke Road at Otter Point Road Crossing (2017) ..... \$100,000  
 The existing pipe crossing Sooke Road at the intersection with Otter Point Road is in need of replacement and was deferred from previous years. This project is challenging with the existing buried utilities, limited corridor and traffic.

CAPITAL REGIONAL DISTRICT

CAPITAL BUDGET - DISTRIBUTION

2016

- #13 Updating Procedures & Engineering Specifications (\$100,000 carry over) ..... \$100,000  
 Several business procedure documents and the Engineering Specifications are in need of updating. A consultant will be hired to assist with this task.
- #14 Reservoir Assessment (\$100,000 in 2016 and \$100,000 in 2017) ..... \$200,000  
 Similar to the assessments in progress or that have been completed for other JDF assets, it is proposed to conduct a review of the existing storage reservoirs/tanks. This will include a higher level structural assessment, condition of materials, functionality and water quality aspects. The results of this review will advise the proposed Strategic Asset Management Plan for 2016 in order to arrive at a comprehensive plan for system upgrades with potential improvements constructed in 2017.
- #15 Water Audit (\$50,000 in 2016) ..... \$50,000  
 A water audit will be conducted of water usage and forecasting. This information will guide the planning of future capital works to ensure that the infrastructure is improved in advance of future demands.
- #16 Implement Strategic Planning (\$20,000 in 2016 and each year thereafter) ..... \$20,000  
 Funding for CRD staff effort to continuously oversee and update the JDF strategic plans.
- #17 Strategic Asset Management Plan (\$100,000 in 2016 and \$50,000 in 2017) ..... \$150,000  
 Several studies have been completed and are in progress to assess the JDF assets and programs and the proposed Strategic Asset Management Plan will consolidate the findings of the previous studies in a comprehensive approach to identify and prioritize future capital expenditures and programs.
- #18 Vehicle and Equipment Replacement (\$300,000 in 2016, \$470,000 in 2016 - 2020) ..... \$770,000  
 This is for replacement of vehicles and equipment used by CRD Integrated Water Services for the day-to-day operation and maintenance of the distribution system. The Equipment Replacement Fund is used to fund the expenditure.
- #19 Site Decommissioning – General (\$10,000 each year) ..... \$50,000  
 This a provisional item to allow engineering and planning reviews of old facilities with a view to possible future site uses.
- #20 Water Service Replacement Program – (\$300,000 each year) ..... \$1,500,000  
 This a new provisional item to allow for the replacement of existing water services that fail during the year and that are currently repaired under the operating budget.
- #21 Emergency Major Main Replacement (\$100,000 each year) ..... \$500,000  
 This item is to fund the costs of responding to emergency major main breaks and conducting replacements.

September 15, 2015

CAPITAL BUDGET - DISTRIBUTION

CAPITAL REGIONAL DISTRICT

- #22 Meter Register Replacement (\$60,000 each year).....\$300,000  
 Many meter registers installed in 1994 may fail during the year and are not covered under warranty.
- #23 Hydrant Replacement, Upgrades and Additions (\$70,000 each year) ..... \$350,000  
 This is an annual provision for replacing old and outdated hydrants, adding new hydrants to the system where requested by the municipalities or fire departments.
- #24 Large Meters/Meter Vaults Replacement, Upgrades and Additions (\$0 in 2016 & \$130,000 from 2017 to 2020)..... \$520,000  
 This is an annual provision for the replacement of obsolete and worn out large (greater than 2" diameter) meters, adding new meters and upgrading meter vaults. In recent years, the majority of health and safety issues with the meter vaults have been addressed and it is proposed to defer the program in 2016 to allow for coordination with the cross connection control program in 2017.
- #25 Site Security Upgrades (\$40,000 each year) ..... \$200,000  
 This is an annual allowance for upgrading and maintaining equipment, security and control systems at distribution facilities such as pump stations, PRV chambers and reservoirs. Items such as access hatches, fencing, etc., will be modified to provide a larger degree of security.
- #26 SCADA/Flow Meters for Lead PRVs (\$60,000 each year) ..... \$300,000  
 The lead PRV into a pressure zone is critical and the availability of the operational data to staff monitoring the system is important. Under this program, SCADA will be installed and a flow meter, where required.
- #27 Distribution System Improvements (\$150,000 each year)..... \$750,000  
 Historically, opportunities to complete work arise during the year which were not specifically identified and budgeted. This item typically relates to coordinating work programs (i.e. JDF water main replacements and municipal paving programs) with the municipalities or development and taking advantage of opportunities during the year that were not specifically identified.
- #28 Hydraulic Model Yearly Update, Testing & Calibration (\$60,000 each year) ..... \$300,000  
 This item is required to input the pipes installed that year into the hydraulic computer model, followed by calibration and testing in order to keep the model up to date for design and planning purposes.
- #29 Update DCC Bylaw (\$10,000 each year, except \$150,000 for a Comprehensive Update in 2016) ..... \$190,000  
 This is a provisional item to cover questions that arise and referred to our consultants for advice. Every 5 years a comprehensive update is required and the previous DCC update was completed in 2011, with the next update scheduled for 2016 for \$150,000.

CAPITAL REGIONAL DISTRICT

CAPITAL BUDGET - DISTRIBUTION

2016

- #30 VMP Pump Station - Sooke Rd at Veterans Memorial Pkwy (\$550,000 carry over) ..... \$2,017,000  
In 2014, design of the VMP Pump Station was completed, with construction starting in 2015 and commissioning scheduled to occur in early 2016.
- #31 Property Purchase Walfred Reservoir (\$150K carry over) ..... \$150,000  
It has been identified that the Walfred Reservoir should be expanded and additional property is required. The need for the project will be reviewed during the 2016 DCC update.
- #32 Throup Road – 515m of 500mm pipe (carry over) ..... \$780,000  
The District of Sooke may proceed with construction of an extension of Throup Road to Phillips Road and the planned water main installation would be coordinated with the District's road project. The DCC report identifies this main as a DCC project and important for a second connection to Sooke.

**CAPITAL ALLOCATED TO SUPPLY & DISTRIBUTION**

Notes:

Line numbers refer to the Capital Budget documents. **Bold paragraph** indicates a new item.

- #1 Transfer SCADA Sites to Wireless Communication (carryforward) ..... \$100,000  
**Five (5) of the SCADA sites installed prior to the year 2000 use the data wire line technology provided by TELUS. Moving to wireless communication for these sites will reduce the risk of losing the ability to monitor and receive data from these sites. These sites include Henlyn, Firwood and Ludlow which are part of the Sooke communication network. The proposal is to replace two data line circuits that service three (3) Distribution System sites and two (2) Regional Water Supply sites.**
  
- #2 Upgrades to Building at 479 Island Highway (\$110,000 in 2016, \$50,000 each year 2017 -2020) ..... \$310,000  
**This includes provisions for the following upgrades to the buildings at 479 Island Highway:-**
  - Specific requirements for protecting workers from falls in BC are set out in the Occupational Health and Safety Regulation (OHSR) for work above 3m. Design and Install a fall restraint anchor system for the roof of the operations building. This will facilitate the maintenance of equipment on the roof. (\$30,000)
  - Water Quality Laboratory upgrades. (\$30,000)
  - Repairs, upgrades and changes to buildings. (provisional \$20,000 annually)
  - Painting of the Buildings.(provisional \$10,000 annually)
  - Carpets, floors and walls. (provisional \$10,000 annually)
  - Refurbish and replacement of equipment and property repairs. (provisional \$10,000 annually)
  
- #3 SCADA Performance Server (carryforward) ..... \$25,000  
**The performance server will be used for the storing the SCADA historical data. This data used for reports and analysis. This server will be used for data from the Regional Water Supply, Core Area and Saanich Peninsula SCADA systems. The total cost for the server is \$50,000. This cost is shared by all three systems.**
  
- #4 SCADA Data management software - OSI PI (carryforward) ..... \$25,000  
**The software will provide access to CRD employees who do not have access to the SCADA system. Various divisions use the SCADA data for analysis, planning and design. At present they obtain this information directly from the Industrial Automation Technologists. Making this change will reduce the number of hours spent in the office by technologists in gathering data. This software provides reporting and analysis tools for the users to use.**
  
- #5 Development of a Project Management System (\$50,000 c/f) ..... \$50,000  
**The development/purchase and installation of project management software.**



#6 Voice Radio Upgrade (\$15,000 in 2017, \$400,000 in 2018)..... \$415,000

**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.

#7 SCADA Hardware Upgrading and Replacement (\$35,000 annually)..... \$175,000

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.

#8 Office Equipment, Upgrades and Replacement (\$30,000 annually) ..... \$150,000

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

#9 Computer Upgrades (\$175,000 annually) ..... \$875,000

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	2015
Network Switch Maintenance	\$10,000
Additional Wireless Access Points and Maintenance	\$15,000
Photocopier Replacement	\$20,000
Replace Fireweather Server	\$5,000
Additional Data Storage	\$15,000
Replacement Computers	\$75,500
Equipment Maintenance (contingency)	\$20,500
Replace Access Control System - Gates/ Video Cameras	\$15,000
<b>Total Capital</b>	<b>\$175,000</b>

- #10 Development of a Maintenance Management System ( 2016 – 2020, \$20,000 annually) ..... \$100,000  
 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 dataset for Crystall Reporting
  - Develop the ability to link or attach documents to work orders and/or functional locations
  
- #11 Implementation of a Fleet Management Solution (\$150,000 ) ..... \$150,000  
 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.

CAPITAL REGIONAL DISTRICT

CAPITAL BUDGET

2016

- #12 Small Equipment & Tool Replacement (Water Operations) (\$65,000 in 2016, \$40,000 each year 2017-2020) ..... \$225,000  
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.
  
- #13 Small Equipment & Tool Replacement (Corporate Fleet) (\$40,000 in 2016, \$15,000 each year 2017-2020) ..... \$100,000  
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.

**SCHEDULE B**

**CAPITAL REGIONAL DISTRICT**

**BYLAW NO:**

**CAPITAL EXPENDITURE PLAN SUMMARY - 2016 to 2020**

2.680 JDF Water Distribution	2016	2017	2018	2019	2020	TOTAL
<b>EXPENDITURE</b>						
Buildings	55,000	25,000	25,000	25,000	25,000	155,000
Equipment	417,500	225,000	417,500	217,500	467,500	1,745,000
Engineered Structures	6,900,000	4,040,000	3,890,000	4,040,000	2,940,000	21,810,000
Vehicles	300,000	0	40,000	180,000	250,000	770,000
	<b>7,672,500</b>	<b>4,290,000</b>	<b>4,372,500</b>	<b>4,462,500</b>	<b>3,682,500</b>	<b>24,480,000</b>
<b>SOURCE OF FUNDS</b>						
Capital Funds on Hand	3,972,500	1,990,000	2,032,500	1,982,500	1,132,500	11,110,000
Debt ( New Debt Only)	3,400,000	2,300,000	2,300,000	2,300,000	2,300,000	12,600,000
Equipment Replacement Fund	300,000	0	40,000	180,000	250,000	770,000
	<b>7,672,500</b>	<b>4,290,000</b>	<b>4,372,500</b>	<b>4,462,500</b>	<b>3,682,500</b>	<b>24,480,000</b>

CAPITAL EXPENDITURE PLAN SUMMARY - 2016 to 2020

	2016	2017	2018	2019	2020	TOTAL
<b>2.680 JDF Water Distribution</b>						
DCC						

**EXPENDITURE**

Engineered Structures	850,000	10,000	10,000	10,000	10,000	890,000
	<b>850,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>890,000</b>

**SOURCE OF FUNDS**

Reserve Fund	850,000	10,000	10,000	10,000	10,000	890,000
	<b>850,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>	<b>890,000</b>

CAPITAL REGIONAL DISTRICT - 2016 BUDGET

	2015			2016 BUDGET REQUEST			FUTURE PROJECTIONS				
	2015 BOARD BUDGET 2	2015 ESTIMATED ACTUAL 3	2015	CORE BUDGET 4	CONTINUOUS SUPPLEMENTARY 5	ONE-TIME SUPPLEMENTARY 6	TOTAL (COL 4, 5 & 6) 7	2017 8	2018 9	2019 10	2020 11
<b>Program Group: CRD-JDF Water Distribution</b>											
<b>SUMMARY OF PROGRAMS</b>											
<b>GENERAL PROGRAM EXPENDITURES:</b>											
WATER MANAGEMENT	3,770,644	3,705,600		3,856,200	-	-	3,856,200	3,993,112	4,011,154	4,090,757	4,171,953
FLEET OPERATIONS & MAINTENANCE	(259,743)	(257,140)		(268,650)	-	-	(268,650)	(274,023)	(279,503)	(285,093)	(290,795)
ADMINISTRATION & FINANCE	1,566,197	1,561,147		1,588,548	-	-	1,588,548	1,609,002	1,629,860	1,651,138	1,672,846
<b>TOTAL OPERATING EXPENDITURES</b>	<b>5,077,098</b>	<b>5,009,597</b>		<b>5,176,098</b>			<b>5,176,098</b>	<b>5,228,091</b>	<b>5,321,511</b>	<b>5,456,892</b>	<b>5,554,004</b>
Percentage increase over prior year's board budget				1.95%	1.95%	1.95%	1.95%	1.78%	1.77%	1.78%	1.78%
BULK WATER PURCHASE	4,821,834	5,218,058		4,915,125	-	-	4,915,125	4,993,388	5,071,536	5,122,751	5,175,389
<b>BULK WATER EXPENDITURES</b>	<b>4,821,834</b>	<b>5,218,058</b>		<b>4,915,125</b>			<b>4,915,125</b>	<b>4,993,388</b>	<b>5,071,536</b>	<b>5,122,751</b>	<b>5,175,389</b>
<b>CAPITAL EXPENDITURES &amp; TRANSFERS</b>											
TRANSFER TO WATER CAPITAL FUND	2,829,776	3,780,087		3,139,673	-	-	3,139,673	3,200,000	3,360,000	3,200,000	3,200,000
TRANSFER TO DEBT RESERVE FUND	36,240	9,240		40,430	-	-	40,430	29,430	29,430	29,430	20,430
TRANSFER TO EQUIPMENT REPLACEMENT FUND	-	-		268,650	-	-	268,650	274,023	279,503	285,093	290,795
<b>TOTAL CAPITAL EXPENDITURES &amp; TRANSFERS</b>	<b>2,866,016</b>	<b>3,789,327</b>		<b>3,448,753</b>			<b>3,448,753</b>	<b>3,503,453</b>	<b>3,668,933</b>	<b>3,514,523</b>	<b>3,511,225</b>
<b>DEBT SERVICING</b>											
DEBT - INTEREST & PRINCIPLE	1,704,658	1,567,408		1,669,908	-	-	1,669,908	2,017,113	2,004,942	2,262,139	2,471,712
<b>TOTAL DEBT EXPENDITURES</b>	<b>1,704,658</b>	<b>1,567,408</b>		<b>1,669,908</b>			<b>1,669,908</b>	<b>2,017,113</b>	<b>2,004,942</b>	<b>2,262,139</b>	<b>2,471,712</b>
<b>TOTAL EXPENDITURES</b>	<b>14,469,808</b>	<b>15,584,400</b>		<b>15,209,884</b>			<b>15,209,884</b>	<b>18,782,045</b>	<b>18,106,922</b>	<b>18,356,215</b>	<b>18,712,530</b>
<b>SOURCES OF FUNDING</b>											
REVENUE - SALES	(13,955,871)	(15,102,665)		(14,748,459)	-	-	(14,748,459)	(15,320,620)	(15,645,497)	(15,894,790)	(16,262,530)
REVENUE - OTHER	(184,240)	(174,740)		(176,930)	-	-	(176,930)	(176,930)	(176,930)	(176,930)	(176,930)
<b>TOTAL SOURCE OF FUNDING FROM OPERATIONS</b>	<b>(14,140,111)</b>	<b>(15,277,405)</b>		<b>(14,925,389)</b>			<b>(14,925,389)</b>	<b>(15,497,550)</b>	<b>(15,822,427)</b>	<b>(16,071,720)</b>	<b>(16,439,460)</b>
<b>SOURCES OF OTHER FUNDING</b>											
TRANSFER FROM DCC RESERVES TO FUND DCC DEBT	(329,495)	(306,995)		(284,495)	-	-	(284,495)	(284,495)	(284,495)	(284,495)	(272,870)
TRANSFER FROM PRIOR YEAR	-	-		-	-	-	-	-	-	-	-
TRANSFER TO FOLLOWING YEAR	-	-		-	-	-	-	-	-	-	-
<b>TOTAL SOURCES OF ALL FUNDING</b>	<b>(14,469,606)</b>	<b>(15,584,400)</b>		<b>(15,209,884)</b>			<b>(15,209,884)</b>	<b>(15,782,045)</b>	<b>(16,106,922)</b>	<b>(16,356,215)</b>	<b>(16,712,530)</b>
Percentage increase over prior year's board budget				5.12%	5.12%	5.12%	5.12%	3.76%	2.06%	1.55%	2.18%

# **CAPITAL REGIONAL DISTRICT**

## **2016 BUDGET**

### **Reserve Schedules**

### **Juan de Fuca Water Distribution Commission**

#### **COMMISSION REVIEW**

October, 2015

2.680 Juan de Fuca Water Distribution  
 Summary Schedule  
 2016 - 2020 Financial Plan

**Asset Profile**

**Juan de Fuca Water Distribution**

Juan de Fuca assets include the lands, office buildings, pump stations, pipe lines, equipment and vehicles. The total historical value as of Dec 31, 2014 for all assets was \$180M.

**Reserve/Fund Summary**

	2015 Estimate	Budget				
		2016	2017	2018	2019	2020
DCC Reserve Account	4,373,245	4,223,245	4,213,245	4,203,245	4,193,245	4,183,245
Equipment Replacement Fund	512,959	481,609	755,632	995,135	1,100,228	1,141,023
<b>Total</b>	<b>4,963,808</b>	<b>4,782,458</b>	<b>5,046,481</b>	<b>5,275,984</b>	<b>5,371,077</b>	<b>5,401,872</b>



2.680 Juan de Fuca Water Distribution  
 Development Cost Charges  
 2016 - 2020 Financial Plan

Development Cost Charges Reserve Schedule

Reserve Fund: Development Cost Charges for Juan de Fuca Water Distribution (Bylaw # 2758)

Fund: 1009 Fund Center: 101353

	Budget					
	Estimate 2015	2016	2017	2018	2019	2020
Beginning Balance	6,688,572	4,373,245	4,223,245	4,213,245	4,203,245	4,193,245
Transfer to Cap Fund to fund DCC projects	(3,160,000)	(150,000)	(10,000)	(10,000)	(10,000)	(10,000)
DCC's received from Member Municipalities(as at June 2015) Interest Income*	710,902 133,771					
<b>Ending Balance \$</b>	<b>4,373,245</b>	<b>4,223,245</b>	<b>4,213,245</b>	<b>4,203,245</b>	<b>4,193,245</b>	<b>4,183,245</b>

General Comments:

Development Cost Charges Reserve Funds for Juan de Fuca Water Distribution was adopted in year 2000 for the purpose of providing funds for the capital costs of water facilities in the service areas.

These Reserve funds are received from Member Municipalities as Development Cost Charges (DCC's) to provide for the capital costs attributable to water system capacity improvements projects specified in the DCC capital expenditure program. Municipalities collect these DCC charges through building permits that are issued to developers for subdivision development. Future years DCC's cannot be projected due to unknown development activity in the Municipalities, influenced by market conditions.

Transfer to capital fund from DCC reserves will be updated at year end to suffice the projected spending for the year.

\* 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.

2.680 Juan de Fuca Water Distribution  
 Equipment Replacement Reserve  
 2016 - 2020 Financial Plan

Equipment Replacement Reserve Schedule

Reserve Fund: Juan de Fuca Distribution Equipment Replacement Reserve (covered by CRD-ERF Bylaw)

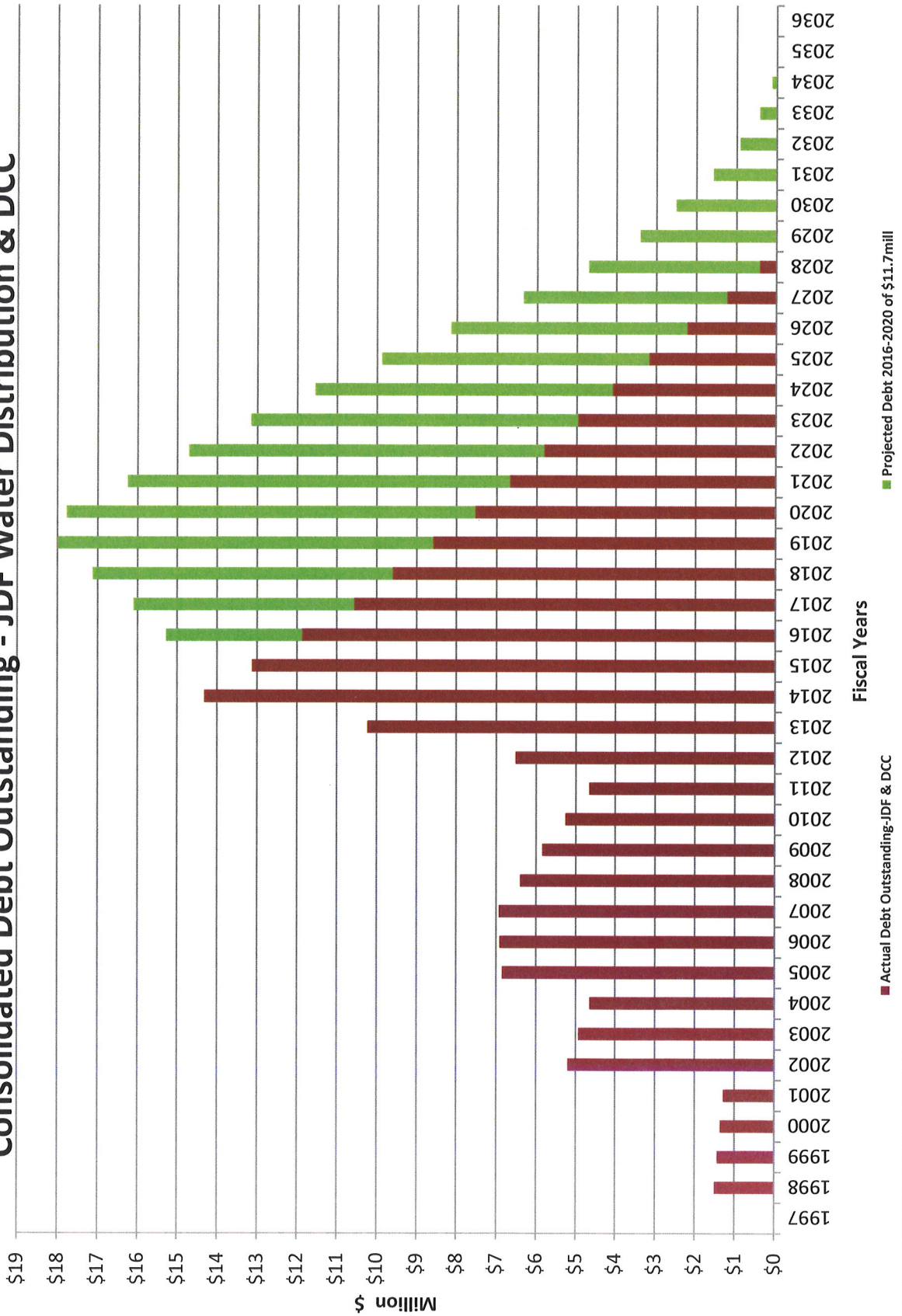
	Estimate 2015	Budget				
		2016	2017	2018	2019	2020
<b>Fund: 1022 Fund Center: 101630</b>						
Beginning Balance	718,587	512,959	481,609	755,632	995,135	1,100,228
Equipment purchases (Based on Capital Plan)	(220,000)	(300,000)	-	(40,000)	(180,000)	(250,000)
Transfer from Operating Budget	-	268,650	274,023	279,503	285,093	290,795
Interest Income*	14,372					
<b>Ending Balance \$</b>	<b>512,959</b>	<b>481,609</b>	<b>755,632</b>	<b>995,135</b>	<b>1,100,228</b>	<b>1,141,023</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.

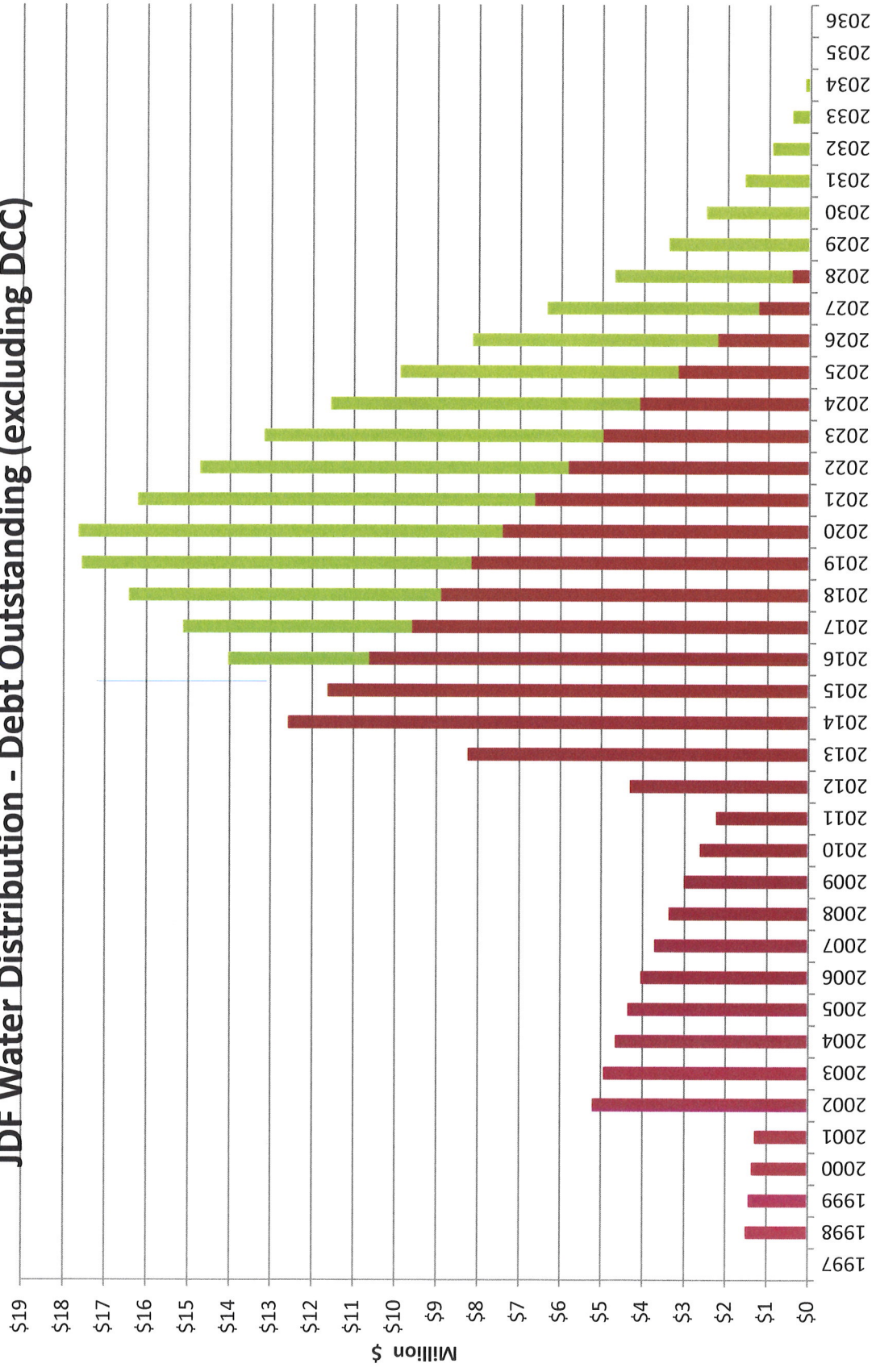
\* Interest should be included in determining the estimated ending balance for the current year. Interest in planning years nets against inflation which is not included.

# Consolidated Debt Outstanding - JDF Water Distribution & DCC



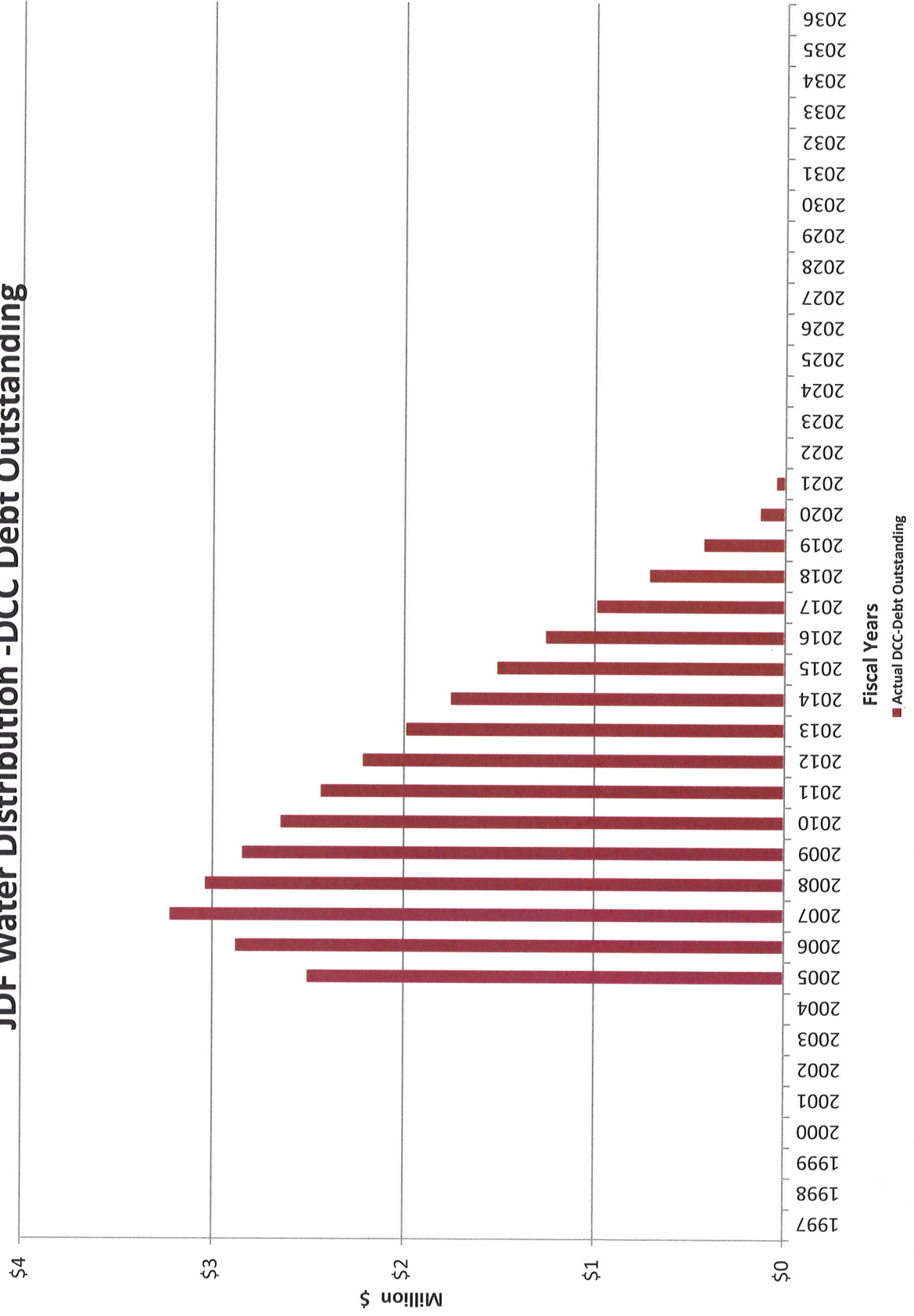


# JDF Water Distribution - Debt Outstanding (excluding DCC)

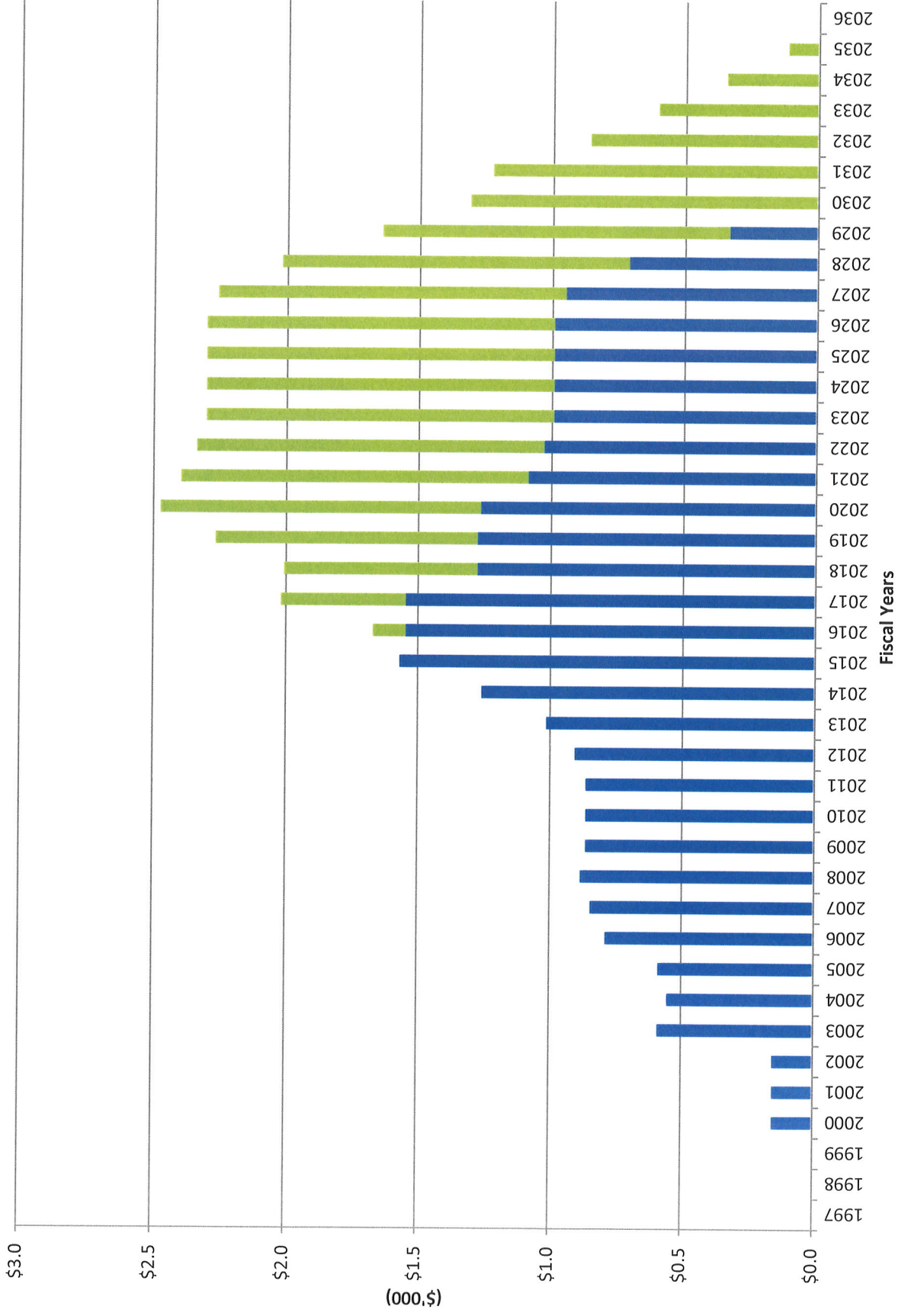


■ Actual JDF Debt Outstanding
 ■ Projected JDF Debt of \$3.4mill-2016, \$2.3mill-2017, \$2.3mill-2018, \$2.3mill-2019, \$1.4mill-2020

# JDF Water Distribution - DCC Debt Outstanding



# JDF Water Distribution-Debt Payments(P&I) on Consolidated Outstanding Debt



■ Debt payments(P&I) on projected 2016-20 debt of \$11.7 mill

■ Debt payments(P&I)

## Attachment 3

	Volume		Total WHLS
	<u>RWS-2014</u>	<u>DISTB-2014</u>	<u>2014 Vlm Data</u>
Jan	2,093,290	727,248	2,820,538
Feb	1,996,266	482,322	2,478,588
Mar	2,246,966	638,560	2,885,526
Apr	2,360,402	503,843	2,864,245
May	3,048,507	437,404	3,485,911
June	4,375,745	657,253	5,032,998
	<u>16,121,176</u>	<u>3,446,630</u>	<u>19,567,806</u>

	Volume		Total WHLS
	<u>RWS-2015</u>	<u>DISTB-2015</u>	<u>2015 Vlm Data</u>
Jan	2,084,101	706,791	2,790,892
Feb	1,939,256	421,121	2,360,377
Mar	2,353,990	693,862	3,047,852
Apr	2,494,815	524,680	3,019,495
May	3,527,731	461,277	3,989,008
June	5,001,557	754,523	5,756,080
	<u>17,401,450</u>	<u>3,562,254</u>	<u>20,963,704</u>

1,280,274      115,624      1,395,898

7.13%

Six months Jan- June/2015 is **higher** than last yr 2014 trend

	Volume		July- Aug WHLS
	<u>RWS-2014</u>	<u>DISTB-2014</u>	<u>2014 Vlm data</u>
July	4,875,765	795,931	5,671,696
Aug	4,428,320	552,615	4,980,935
	<u>9,304,085</u>	<u>1,348,546</u>	<u>10,652,631</u>

	Volume		July- Aug WHLS
	<u>RWS-2015</u>	<u>DISTB-2015</u>	<u>2015 Vlm data</u>
July	4,783,660	960,644	5,744,304
Aug	4,396,575	559,585	4,956,160
	<u>9,180,235</u>	<u>1,520,229</u>	<u>10,700,464</u>

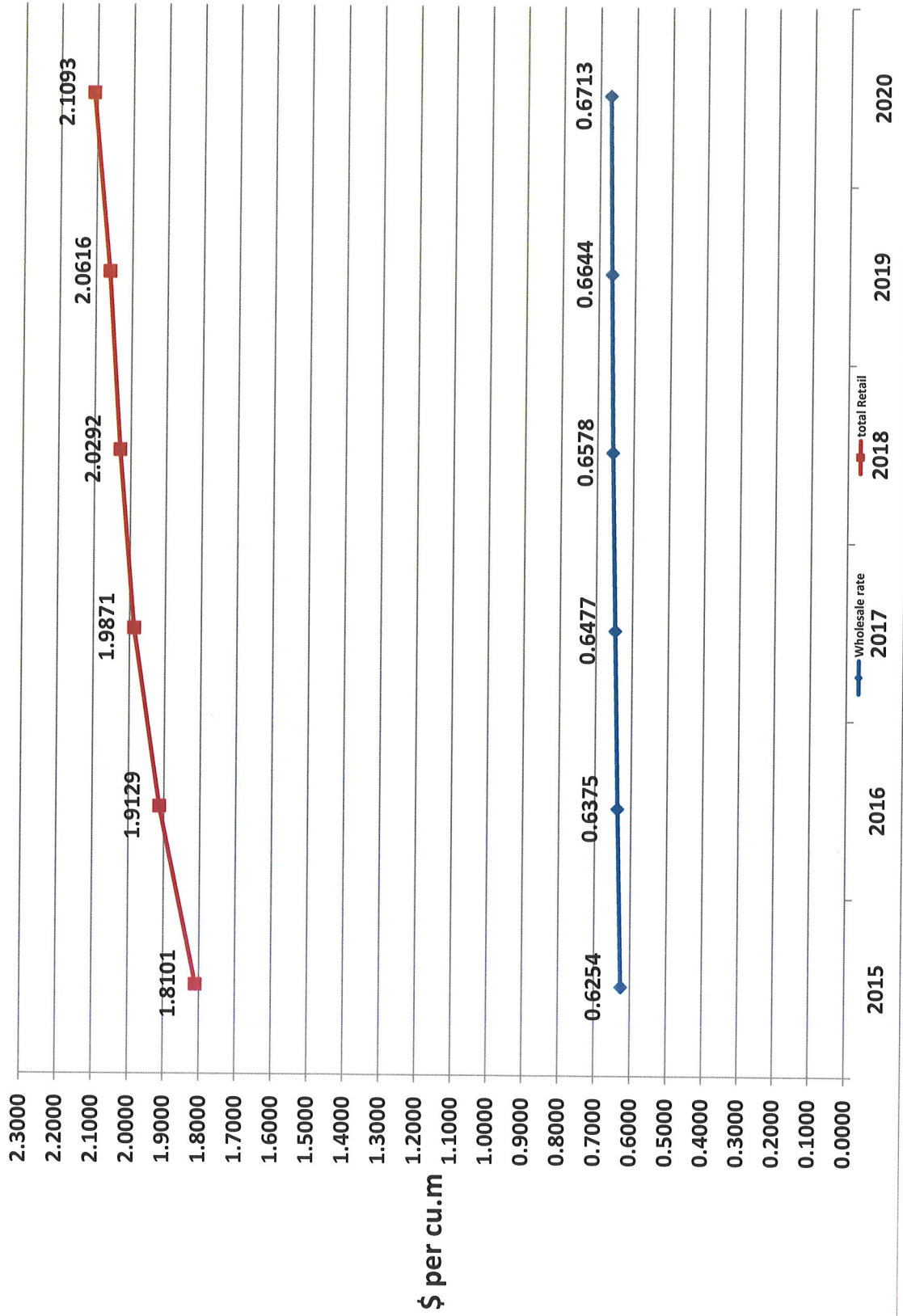
(123,850)      171,683      47,833

0.45%

Two months July- Aug/2015 is close to last yr 2014 total WHLS



### CRD Water Wholesale & Retail Rate Projections





**CAPITAL REGIONAL DISTRICT - INTEGRATED WATER SERVICES****Water Watch**

Issued: September 28, 2015

**Water Supply System Summary:****1. Useable Volume in Storage:**

Reservoir	September 30 5 Year Ave		September 30/14		September 27/15		% Existing Full Storage
	ML	MIG	ML	MIG	ML	MIG	
Sooke	68,042	14,969	66,608	14,654	63,500	13,970	68.5%
Goldstream	7,086	1,559	6,604	1,453	6,281	1,382	63.9%
Total	75,128	16,528	73,212	16,107	69,782	15,352	68.0%

**2. Average Daily Demand:**

For the month of September	127.3 MLD	28.01 MIGD
For week ending September 27, 2015	116.6 MLD	25.65 MIGD
Max. day September 2015, to date:	144.7 MLD	31.83 MIGD

**3. Average 5 Year Daily Demand for September**

Average (2010 - 2014)	153.4 MLD <sup>1</sup>	33.74 MIGD <sup>2</sup>
-----------------------	------------------------	-------------------------

<sup>1</sup>MLD = Million Litres Per Day      <sup>2</sup>MIGD = Million Imperial Gallons Per Day**4. Rainfall September:**

Average (1914 - 2014):	63.9 mm
Actual Rainfall to Date	87.8 (137% of monthly average)

**5. Rainfall: Sep 1 - Sep 27**

Average (1914 - 2014):	53.4 mm
2015	87.8 (164% of average)

**6. Water Conservation Action Required:**

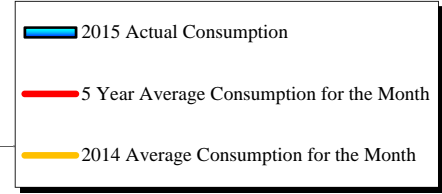
Stage 1 water conservation bylaw is now in effect  
 Check our website at [www.crd.bc.ca/water](http://www.crd.bc.ca/water) for more information.  
 If you require further information, please contact:

Ted Robbins, B.Sc., C.Tech  
 General Manager, CRD - Integrated Water Services  
 or  
 Deborah Walker  
 Demand Management Coordinator

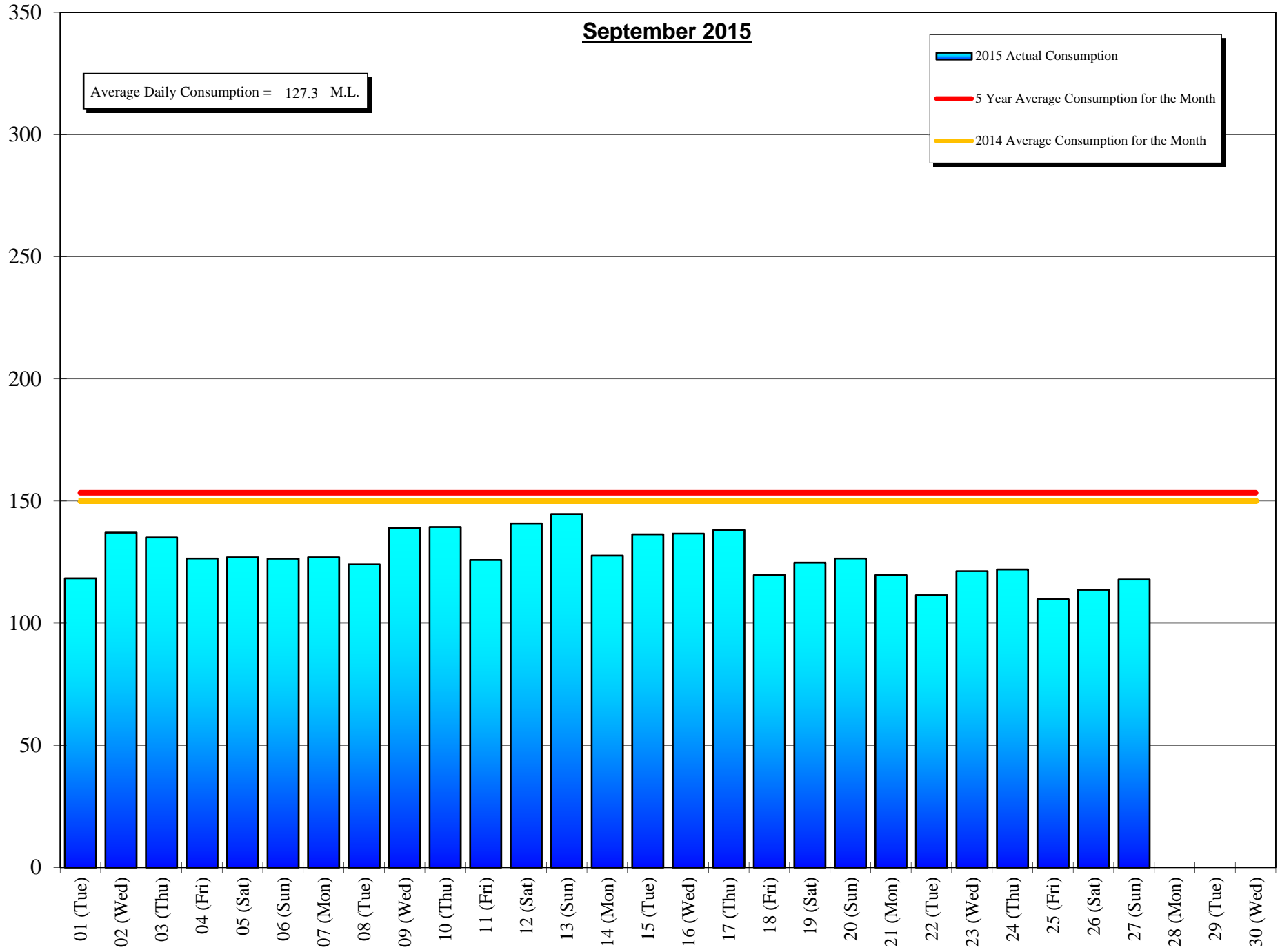
Capital Regional District Integrated Water Services  
 479 Island Highway  
 Victoria, BC V9B 1H7  
 (250) 474-9600

# September 2015

Average Daily Consumption = 127.3 M.L.



Consumption (Million Litres)



Day

## Daily Consumptions: - September 2015

Date	Total Consumption		Air Temperature @ Japan Gulch		Weather Conditions	Precipitation @ Sooke Res.: 12:00am to 12:00am		
	(ML)	(MIG)	High (°C)	Low (°C)		Rainfall (mm)	Snowfall (mm)	Total Precip.
01 (Tue)	118.4	26.06	18	11	Cloudy / Showers	5.6	0.0	5.6
02 (Wed)	137.1	30.17	15	8	Cloudy / Showers	11.7	0.0	11.7
03 (Thu)	135.1	29.72	16	8	Cloudy / Showers	14.5	0.0	14.5
04 (Fri)	126.5	27.82	17	7	Sunny / P. Cloudy	0.0	0.0	0.0
05 (Sat)	127.0	27.95	20	8	Sunny / P. Cloudy / Showers	6.9	0.0	6.9
06 (Sun)	126.4	27.81	15	10	Cloudy / P. Sunny / Showers	12.9	0.0	12.9
07 (Mon)	127.0	27.95	18	9	Sunny / P. Cloudy	0.0	0.0	0.0
08 (Tue)	124.1	27.31	19	13	Sunny / P. Cloudy / Showers	1.3	0.0	1.3
09 (Wed)	139.0	30.58	22	12	Sunny / P. Cloudy	0.0	0.0	0.0
10 (Thu)	139.4	30.67	24	12	Sunny	0.0	0.0	0.0
11 (Fri)	125.9	27.69	25	12	Sunny	0.0	0.0	0.0
12 (Sat)	140.9	30.99	24	13	Sunny	0.0	0.0	0.0
13 (Sun)	144.7 <span style="color: red;">&lt;=Max</span>	31.83	18	10	Sunny / P. Cloudy	0.0	0.0	0.0
14 (Mon)	127.7	28.10	15	8	Sunny / P. Cloudy	0.0	0.0	0.0
15 (Tue)	136.4	30.00	15	8	Sunny / P. Cloudy	0.0	0.0	0.0
16 (Wed)	136.7	30.08	17	9	Sunny / P. Cloudy / Showers	4.6	0.0	4.6
17 (Thu)	138.1	30.39	17	11	Sunny / P. Cloudy	0.0	0.0	0.0
18 (Fri)	119.7	26.33	15	11	Cloudy / P. Sunny / Showers	3.5	0.0	3.5
19 (Sat)	124.8	27.47	20	13	Cloudy / P. Sunny / Showers	3.5	0.0	3.5
20 (Sun)	126.5	27.83	18	10	Cloudy / Showers / Windy	12.2	0.0	12.2
21 (Mon)	119.7	26.34	16	8	Sunny / P. Cloudy	0.0	0.0	0.0
22 (Tue)	111.5	24.53	17	6	Sunny / P. Cloudy	0.0	0.0	0.0
23 (Wed)	121.3	26.69	16	6	Cloudy / P. Sunny	0.0	0.0	0.0
24 (Thu)	122.0	26.83	16	10	Cloudy / Showers	6.8	0.0	6.8
25 (Fri)	109.8 <span style="color: red;">&lt;=Min</span>	24.16	15	8	Cloudy / P. Sunny / Showers	1.8	0.0	1.8
26 (Sat)	113.7	25.01	14	6	Sunny / P. Cloudy / Showers	2.5	0.0	2.5
27 (Sun)	117.9	25.95	15	5	Sunny / P. Cloudy	0.0	0.0	0.0
28 (Mon)								
29 (Tue)								
30 (Wed)								
<b>TOTAL</b>	<b>3437.3 ML</b>	<b>756.23 MIG</b>				<b>87.8</b>	<b>0</b>	<b>87.8</b>
<b>MAX</b>	<b>144.7</b>	<b>31.83</b>	<b>25</b>	<b>13</b>		<b>14.5</b>	<b>0</b>	<b>14.5</b>
<b>AVE</b>	<b>127.3</b>	<b>28.01</b>	<b>17.7</b>	<b>9.3</b>		<b>3.3</b>	<b>0</b>	<b>3.3</b>
<b>MIN</b>	<b>109.8</b>	<b>24.16</b>	<b>14</b>	<b>5</b>		<b>0.0</b>	<b>0</b>	<b>0.0</b>

ML = Million Litres    MIG = Million Imperial Gallons

Average Rainfall for September (1914-2014)	63.9
Actual Rainfall: September	87.8
% of Average	137%
Average Rainfall (1914-2014): Sept 01 - Sep 27	53.4
Actual Rainfall (2015): Sept 01 - Sep 27	87.8
% of Average	164%

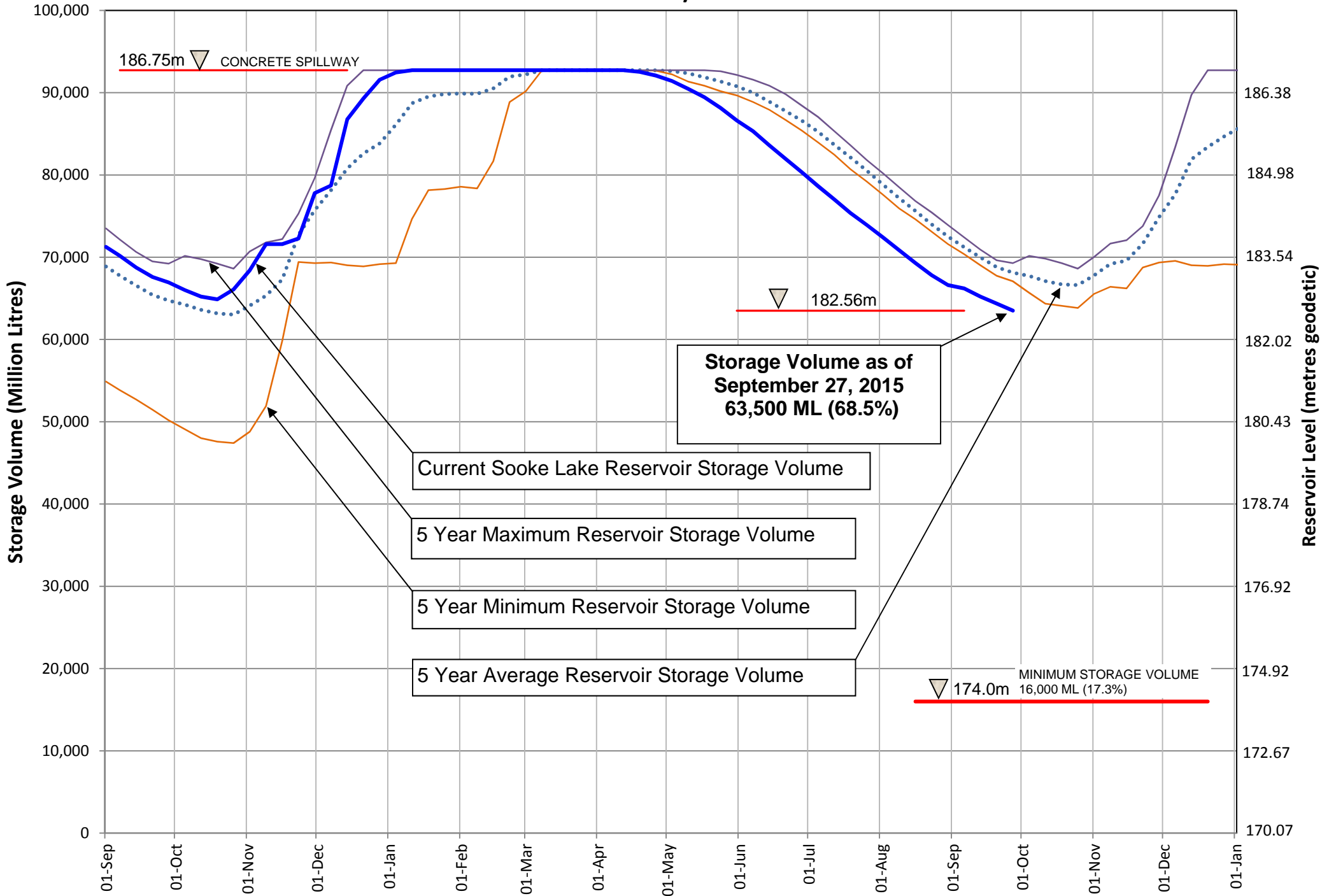
Number days with precip. 0.2 or more
<b>13</b>

**Note:** 10% of Snow depth applied to rainfall figures for snow to water equivalent.

Water spilled at Sooke Reservoir to date = 0.00 Billion Imperial Gallons  
 = 0.00 Billion Litres

# SOOKE LAKE RESERVOIR STORAGE SUMMARY

## 2014 / 2015



# SOOKE LAKE RESERVOIR STORAGE 18 MONTH SUMMARY

