



Making a difference...together

WILDERNESS MOUNTAIN WATER SERVICE COMMISSION

Notice of Meeting on **Friday, October 28, 2016 at 10 a.m.**

Main Conference Room, 479 Island Highway, Victoria, BC

Rob Hancock (Chair) Director Mike Hicks Shawn Williamson Chuck Taylor

AGENDA

1. Approval of Agenda
2. Adoption of Minutes of March 29, 2016
3. Wilderness Mountain Water Service Water Quality and System Improvements (staff report)
4. 2017 Operating and Capital Budget (staff report)
5. New Business
6. Adjournment

To ensure quorum, advise Lorrie Siemens 250.360.3087 or lsiemens@crd.bc.ca if you cannot attend.



Making a difference...together

**Minutes of a Meeting of the Wilderness Mountain Water Service Commission
Held March 29, 2016 in the Main Conference Room, 479 Island Highway, Victoria, BC**

PRESENT: **Committee Members:** Y. Shap (C), C. Taylor, R. Hancock, Director M. Hicks
Staff: Malcolm Cowley, Acting Senior Manager, Infrastructure Engineering M. McCrank, Senior Manager, Infrastructure Operations, S. Mason, Manager, Water Engineering and Planning, T. Scaber, Manager, Water System Operations, C. Moch, Manager, Water Quality Operations, K. Wilson, Senior Water Sampling Technician, L. Siemens (recorder)
Two Members of the Public

The meeting was called to order at 9:15 am.

1. Approval of Agenda

The following items were added to New Business:

- Capacity of Reservoir
- Commission Member Resignation
- Voting at Annual General Meetings

MOVED by R. Hancock, **SECONDED** by C Taylor,
That the agenda be approved as amended.

CARRIED

2. Election of Chair

Nominations were called for chair of the Wilderness Mountain Water Service Commission for a one-year term. R. Hancock was nominated and agreed to stand. There were no further nominations. R. Hancock was elected as chair.

3. Adoption of Minutes of July 31, 2015

MOVED by Y. Shap, **SECONDED** by C. Taylor,
That the minutes of July 31, 2015 be adopted as previously distributed.

CARRIED

4. Adoption of Minutes of September 25, 2015

MOVED by C. Taylor, **SECONDED** by Y. Shap,
That the minutes of September 25, 2015 be adopted as previously distributed.

CARRIED

5. Wilderness Mountain Water Service 2016 Capital Project Update

M. Cowley presented a written report.

MOVED by Director Hicks, **SECONDED** by Y. Shap,
That the report be received for information.

MOVED by Y. Shap, **SECONDED** by Director Hicks,
That the Wilderness Mountain Water Service Commission direct staff to:

1. Cancel the Ambience Place Flushing Appurtenances project;
2. Complete Phase 2 of the SCADA Upgrade and approve the use of surplus funds from other completed projects to complete Phase 2; and
3. Transfer any remaining surplus from the capital projects back into the capital reserve fund.

CARRIED

6. William Brook Reservoir and Dam / Transfer of Ownership

S. Mason presented a written report.

The following topics were discussed:

- Accuracy of the information provided to the East Sooke Fire Department.
- Risks associated with dam failure.

Director Hicks advised that he would contact the Chair of the East Sooke Fire Protection and Emergency Response Service Commission to clarify responsibilities of ownership, liabilities and costs if they were to take ownership of the William Brook Dam.

Director Hicks also indicated that the Funks and Mt. Flemming (of Seedtree Road) may also be interested in taking on ownership of the dam/reservoir.

MOVED by Director Hicks, **SECONDED** by C. Taylor,
That the Wilderness Mountain Water Service Commission,

1. Complete the dam safety work (clear the spillway and remove trees at a budget of \$10,000) as part of the 2016 operating budget work:
2. Prepare a standard operating procedure to mobilize pump(s) in the event that the reservoir has to be drained; and
3. Retain the existing \$2,500 capital budget item pending the outcome of a potential owner to take on the ownership of the William Brook Reservoir and Dam.

CARRIED

Staff were requested to provide the commission with any information obtained from the Province regarding impacts of a breach of the William Brook Dam.

7. Water Operations Report (March 2016) and Proposed 2016 Operating Budget Adjustments

M. McCrank presented a written report.

MOVED by Y. Shap, **SECONDED** by C. Taylor,
That the Wilderness Mountain Water Service Commission,

1. Allocate \$3,480 from the existing 2016 operating labour budget to the water quality testing budget to complete the proposed additional water quality testing, beginning in 2016 and continuing thereafter; and,
2. Direct staff to complete the dam safety work (clear spillway and remove trees at a budget of \$10,000) as part of the 2016 operating budget work.

CARRIED

8. Water Quality Update

C. Moch provided a verbal report on the Wilderness Mountain water system for the period of July 2015 to March 2016. The following topics were addressed:

- Operations
- WQ Sampling
- Bacteria
- Taste & Odour
- Disinfection By-Products
- Algae
- Turbidity
- Metals
- Parasites

MOVED by Director Hicks, **SECONDED** by Y. Shap,
That the report be received for information.

CARRIED

9. Review of Action List

The action list was reviewed and updated.

Information Arising from Action List

- The commission was provided with information on insurance coverage.
- Necessary trees were removed by BC Hydro with no impact to the service area.
- Operations staff are ensuring that the gate lock is secured tightly after each use.

10. New Business

Capacity of Reservoir

A discussion took place on the capacity of the reservoir. S. Mason reviewed the information related to the capacity of the reservoirs and development contained in the earlier staff report entitled "Dam Safety and Maintenance Strategy" of March 31, 2015.

Commission Resignation

Y. Shap advised that he has sold his property in the Wilderness Mountain water service area and is resigning from the commission. A resignation letter was handed to Director Hicks. The commission recommended the appointment of Shawn Williams who was in attendance. His name will be forwarded to the CRD Board for appointment.

The commission members thanked Yale Shap for his several years of dedicated service on the commission.

Voting at Annual General Meetings

The commission members requested clarification on voting requirements at Annual General Meetings. Staff advised that information will be forwarded to the commission prior to the AGM.

11. Adjournment

MOVED by Directory Hicks, **SECONDED** by C. Taylor,
That the meeting be adjourned at 11:12 a.m.

CARRIED



Making a difference...together

**REPORT TO WILDERNESS MOUNTAIN WATER SERVICE COMMISSION
MEETING OF FRIDAY, OCTOBER 28, 2016**

**SUBJECT WILDERNESS MOUNTAIN WATER SERVICE - WATER QUALITY AND
SYSTEM IMPROVEMENTS**

ISSUE

In July 2016 Capital Regional District (CRD) Water Quality staff recorded adverse bacteriological test results and high turbidity readings in the treated water as a result of a strong zooplankton bloom in the Wilfred Reservoir. This ultimately led to a boil water advisory for July/August 2016. Several improvements have been conceptualized to address these issues.

BACKGROUND

The main components of the Wilderness Mountain Water System include the Wilfred Reservoir raw water source, the Wilderness Mountain Water Treatment Plant, and the subsequent distribution system. All components were considered when addressing the water quality issues.

Wilfred Reservoir is the primary water source, and is a man-made surface water reservoir with an approximate area of 1.1 hectares and a total volume of approximately 57,000 m³. The reservoir is filled by natural runoff from the surrounding catchment during the wet season. Typically the reservoir level is drained approximately 1.5 m below full service level during the summer season. The reservoir experiences zooplankton blooms that can significantly impact the drinking water quality. These algae blooms are more profound in the summer months when the water is warmer.

The Wilderness Mountain Water Treatment Plant utilizes cartridge filters for filtration followed by primary disinfection in the form of ultraviolet light and secondary disinfection in the form of chlorine and ammonia. Treated water is then supplied to the Wilderness Mountain residents via the water storage tanks and distribution system. It should be noted that the treated water is supplied to the Wilderness Mountain system storage tanks via the distribution system.

During the zooplankton blooms, the existing cartridge filters become plugged and there is a possibility that water with high turbidity, and high organic content bypasses the filter system and enters the distribution system.

Between July 28 and August 26, 2016 bacteriological test results indicated high turbidity readings in the distribution system, likely a result of the strong zooplankton bloom in the lake. The CRD issued a Boil Water Advisory on July 28, 2016. The Boil Water Advisory was rescinded on August 26, 2016 after extensive sampling and testing confirmed the drinking water quality was within acceptable parameters.

SYSTEM IMPROVEMENTS

The following system improvements have been identified to improve water quality and have been conceptually evaluated. Order of magnitude cost estimates have been included for budgetary purposes.

Short-Term Recommendations:

1. Wilfred Reservoir - Intake Screen (Approved 2016 Capital Budget): The intake at Wilfred Reservoir is currently not screened. An intake screen will be added during scheduled service to the well pump, (proposed for late 2016) to reduce installation cost.
2. Water Treatment Plant - Pre-Filter (\$20,000): The existing cartridge filters require frequent replacement during high turbidity events and have the potential to by-pass raw water when they become plugged. Several pre-treatment systems were assessed to filter raw water. The preferred solution is a commercially available sand filter to pre-treat raw water prior to the cartridge system. Sand filter pre-treatment will reduce material entering the treatment plant, extend the life of the cartridge filters, and reduce the potential of clogging.

To reduce initial capital cost, the sand filter will use a raw water back wash system. The backwash system periodically clears the filter and discharges collected material. If the sand filter does not backwash satisfactorily using raw water, the pre-treatment system can be modified using a pressure tank and filtered water for the back wash. The effectiveness of using the raw water back wash system will be monitored over the first year. If required, modification of the system to use filtered water and a pressure tank will be included in a future budget year.

Operational costs are not anticipated to increase with the addition of this equipment.

3. Distribution System - End of Line Flush (\$5,000): An existing end of line flush is situated above ground at 563 Wilderness Place. This flush will be replaced with a new below ground end of line flush (continuous flow) to facilitate constant movement and turnover of water in the distribution system. This appurtenance is intended to prevent water from becoming stale and to improve the chlorine residual (long term disinfectant).

Medium to Long Term Recommendations:

4. Distribution System – Main Line Pigging (\$50,000): The existing distribution system consists of approximately 3,800 meters of 100 mm and 150 mm diameter PVC water mains that were installed in the 1980s and 1990s. The system is flushed periodically to clean the water mains (most recently in March of 2016); however, a “pigging” exercise should be employed to further clean the system in the medium term. Pigging of the system involves forcing a cleaning instrument under pressure through the pipeline. The primary benefit of the pigging process is the removal of foreign debris from the pipeline, thus improving water quality. This exercise is not required immediately; and as such, will be included in a future Strategic Asset Management Plan update.
5. Distribution System - Direct Feed to Storage Tanks (\$200,000): The existing Wilderness Mountain water storage tanks are supplied through the same distribution line used to provide water service to Wilderness Mountain residents.

Installation of a dedicated supply (separating the tank feed from the domestic system) will provide more consistent water quality by increasing chlorine contact time, allowing the storage tanks to cycle more frequently resulting in a reduction of age of the water in the storage tanks and distribution system. While this project will improve chlorine residual and reduce the potential for stale water, it will not improve the turbidity (caused by the raw water source).

A dedicated line to the storage tanks was investigated as part of Kerr Wood Leidal (KWL) – Wilderness Mountain Water Treatment Process Feasibility Study - 2011. Their report recommended a dedicated 150mm supply line to the storage tanks from the intersection of Cains Way and Ambience Place for a total distance of approximately 275 meters, but this was not completed during the initial upgrade due to project budget limitations.

This project is not required immediately and will be included in a future Strategic Asset Management Plan Update.

Summary Budgetary Cost Estimate

Item	Description	Cost
1	Water Treatment Plant - Pre-Filter	\$20,000
2	Wilfred Reservoir - Intake Screen	N/A (existing approved budget of \$2,500)
3	Distribution System - End of Line Flush	\$5,000
4	Distribution System - Pigging Distribution System	\$50,000
5	Distribution System - Direct Feed to Reservoir	\$200,000
TOTAL		\$275,000

**all costs are budgetary and will be further refined though design.*

ALTERNATIVES

Alternative 1

That the Wilderness Mountain Water Service Commission direct staff to

1. Complete Items 1 through 3 for an estimated cost of \$25,000 to be funded from the Capital Reserve Fund (CRF); and
2. Include items 4 and 5 in a future update to the Wilderness Mountain Strategic Asset Management Plan.

Alternative 2

That the Wilderness Mountain Water Service Commission direct staff to provide more information, or explore other alternatives.

IMPLICATIONS

Alternative 1 - The proposed work was not planned and will reduce the current CRF balance but has been included in the 5 -Year Capital Plan to be presented October 28, 2016. The improvements are proposed to be implemented in the spring of 2017.

Alternative 2 - Additional time will be required to evaluate and implement the proposed works which may postpone the 2017 Capital Improvements Project delivery schedule.

CONCLUSION

The pre-filter, intake screen, and flush are cost effective solutions that can be applied in the near future (ahead of the summer 2017) to improve water quality. The system will be monitored after the pre-filter, intake screen, and flush are installed to confirm effectiveness during operation in the field.

The pigging and the direct feed to the tanks will be included in a future Strategic Asset Management Plan update. Pigging and the direct feed to the tanks may need to be implemented in future years depending on the performance of the above noted items pre-filter, intake screen, and flush.


RECOMMENDATION

That the Wilderness Mountain Water Service Commission direct staff to

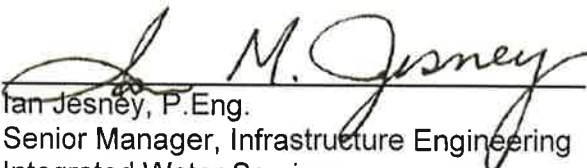
1. Complete Items 1 through 3 for an estimated cost of \$25,000 to be funded from the Capital Reserve Fund (CRF); and
2. Include items 4 and 5 in a future update to the Wilderness Mountain Strategic Asset Management Plan.



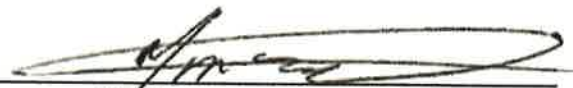
Shayne Irg, P.Eng.
Project Engineer
Integrated Water Services




Ian Sander, P.Eng.
Manager, Capital Projects
Integrated Water Services
Concurrence



Ian Jesney, P.Eng.
Senior Manager, Infrastructure Engineering
Integrated Water Services
Concurrence



Matthew McCrank, M.Sc., P.Eng.
Senior Manager, Infrastructure Operations
Integrated Water Services
Concurrence



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

SI/IJ:ls



Making a difference...together

**REPORT TO WILDERNESS MOUNTAIN WATER SERVICE COMMISSION
MEETING OF FRIDAY, OCTOBER 28, 2016**

SUBJECT 2017 OPERATING AND CAPITAL BUDGET

ISSUE

This report provides a synopsis of the 2017 operating and capital budget, highlighting proposed changes related to operational expenditures, debt charges, any capital expenditures and revenue for the Wilderness Mountain Water Service (WMWS).

In accordance with the service area establishment Bylaw No. 3511 of the Wilderness Mountain Water Service Commission, Item 12 states that, "*Each year, according to the District budget timetable, the commission shall recommend 5-year operating and capital budgets for the service provided in the Service Area which shall cover all anticipated costs of development, maintenance, operational and other expenses, including debt charges and shall submit such expenditure costs, together with estimates for expected revenue, in a form approved by the Director of Finance of the Regional Board for the approval of the Regional Board and for inclusion in the Regional Board's 5-year Financial Plan.*"

BACKGROUND

2016 Estimated Actual Revenue and Expense

The estimated actual operating expense is projected to be \$100 over budget as a result of:

- Lower than budgeted expenditures for:
 - Supplies (\$1,400)

- Higher than budgeted expenditures for
 - Allocations (\$3,690) (primarily due to inventory – e.g. coarse filters)
 - Labour charges (\$1,034)
 - Other operating expenses (\$5,136)

In addition, the 2016 budget included a contingency of \$8,360.

The estimated actual revenue is projected to be \$100 over the 2016 budget due to higher than budgeted interest income and penalties (e.g. late bill payment penalties).

Therefore, the projected year end surplus/deficit is \$0.

2017 Operating Expense

An increase of \$1,390 (1.4%) in budgeted operating expense is proposed for 2017.

This is primarily a result of:

- Increases in:
 - Contract for services (\$10)
 - Electricity (\$90)
 - Supplies (\$60)
 - Labour Charges (\$900)
 - Contingency (\$180)
 - Other operating expenses (\$290)

- Decrease in:
 - Allocations (\$140)

The contingency is to be used in the event that the operating budget is exceeded due to a major unplanned event.

2017 Debt / Reserves

Capital Reserve Fund 1075:

It is proposed that no funds be transferred into the Capital Reserve Fund in 2017. The balance in the capital reserve fund is projected to be \$95,340 at the end of 2016.

Capital Funds on Hand (WSV185157)

There is a total of \$7,183 unspent from funding for capital projects that have been undertaken since 2015, as shown in Table 1. All of these projects are yet to be closed and as such it is not recommended to transfer any remaining funds to the Capital Reserve Fund (CRF) at this time.

Table 1: Summary of Capital Projects History

	Year	Budget	Funding		Remaining	To CRF
			CRF	Spent		
Wilfred Reservoir Upgrade	2015	10,000	10,000	(9,693)	307	-
SCADA Upgrade	2015	62,500	63,800	(64,292)	(492)	-
Pump Upgrade	2016	4,500	4,500	(468)	4,032	-
Install flushing appurtenances	2016	-	500	-	500	-
William Brook Reservoir	2016	2,500	2,500	-	2,500	-
Interest		-	-	-	336	-
Total WSV185157		79,500	81,300	(74,453)	7,183	-

1. Wilfred Reservoir Upgrade – this project included the installation of a set of stairs to safely access the dam, removal of alder trees, preparation of the Operating, Maintenance and Surveillance (OMS) Plan and Emergency Preparedness Plan (EPP) and installation of an outlet valve handle which is still outstanding and planned to be completed in 2016.
2. SCADA Upgrade, Phase 2 – the second phase of SCADA upgrading has been completed.
3. Pump Upgrade – The shelf spare chemical metering pump has been purchased and is situated in inventory.
4. Install Flushing Appurtenances – an existing flushing saddle was located on Ambience Way and therefore there is no need to complete this work.
5. William Brook Reservoir Transfer Agreement – opportunities are still being sought to transfer the ownership of the dam to another owner and therefore this task and expenditure will be carried forward.

It should be noted that some of the dam safety tasks for the William Brook reservoir were funded from the 2016 Operating account (\$10,000 approved at the March 29, 2016 WMWC meeting). To date the dam spillway has been cleared of vegetation and soil, the trees have been removed from the dam and the OMS and EPP were prepared. Discussions continue regarding the transfer of the dam to a new owner.

MFA Debt:

In 2012, \$281,000 was borrowed for the water treatment plant project. The interest rate on the debt is 3.4% and it is being amortized over 15 years. The annual debt servicing cost of \$23,580 is unchanged from the 2016 amount.

2017 Revenue (User Charge and Parcel Tax)

In order to meet operating expenses and debt servicing costs it is proposed that:

- The user charge remain at the same level as 2016 set at \$42,940. Based on 71 single family equivalents (SFE) this equates to \$604.79 per SFE.
- The parcel tax be increased to \$67,870 or \$22,340 over the 2016 amount of \$45,530. Based on 82 folios, and including the 5.25% surveyor of taxes fee, this equates to \$871.14 per folio.
- The consumption charge (water rate), remain at the same level as 2016 set at \$15,120. Based on 71 SFE's this equates to \$212.96 per SFE.

Capital Projects Plan

2016 Capital Projects Status:

The following capital work is proposed for 2017 and proposed to be funded from the capital reserve account:

1. William Brook Reservoir – Transfer Agreement (carry forward \$2,500)
The William Brook reservoir was determined to be surplus to the needs of the water service and it is proposed to transfer the ownership and operation of the dam and reservoir

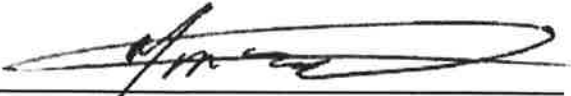
to another party. This expenditure related to the CRD staff and legal effort for such a transfer.

2. NEW - Source Water Vulnerability Study (\$25,000 in 2017) - Study to determine the medium to long term vulnerability of the source water (Wilfred Reservoir) and its viability as a water source (quantity and quality) for the WMWS system in light of pressures such as projected demand changes and climate change. In addition, in light of the degradation of the source water that occurred in April - August 2016, determine if there are further upgrades required to the Water Treatment Process to account for the raw water quality. This study will also bring the WMWS into compliance with Island Health requirements for a watershed protection plan.
3. NEW – Water Treatment Process Upgrade – Pre-Filtration (\$20,000 in 2017) - The existing treatment system uses cartridge filters. These filters require frequent replacement during high turbidity events and have the potential to bypass when they become clogged. Several pre-treatment systems were investigated and a commercially available sand filter will be installed to pre-treat raw water prior to the cartridge system. This will reduce material entering the treatment system, extend the life of the cartridge filters, and reduce the potential of clogging.
4. NEW - Water System - End of Line Flush (\$5,000 in 2017) - A permanent end of line flush will be installed at 563 Wilderness Place to facilitate constant movement and turnover of water in the distribution system. This appurtenance is intended to prevent water from becoming stale and to improve chlorine residual (long term disinfectant).
5. NEW - Tank Safety Improvements – (\$20,000 in 2017) – A safety platform is required on the roundsloped roof water storage tank to facilitate safe access to the manway on top of the tank.

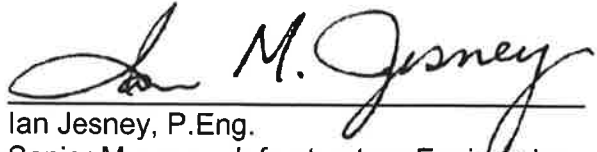
RECOMMENDATION

That the Wilderness Mountain Water Service Commission recommend that the Capital Regional District Board:

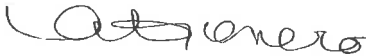
1. Approve the 2017 operating and capital budget for the Wilderness Mountain Water System as presented;
2. Approve the 2017 Parcel Tax rate of \$871.14, User charge of \$604.79, and fixed consumption charge of \$212.96 for the Wilderness Mountain Water System and,
3. Balance the 2016 estimated actual expense and revenue on the 2016 amount carried forward to 2017 and the 2017 contingency.



Matthew McCrank, P.Eng.
Senior Manager, Infrastructure Operations
Integrated Water Services



Ian Jesney, P.Eng.
Senior Manager, Infrastructure Engineering
Integrated Water Services



Amber Genero, MA., CPA, CMA
A/Manager Financial Planning & Analysis
Financial Services



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

TS/SM/MMc:ls
Attachment: 1

CAPITAL REGIONAL DISTRICT

2017 Budget

Wilderness Mountain Water Service

Committee Review

Compiled and Presented by CRD Finance

Oct 2016

Service: 2.691 Wilderness Mountain Water Service

DEFINITION:

To finance, operate and maintain the supply, conveyance, treatment, storage and distribution of water to the Wilderness Mountain Local Service area that is within the JDF Electoral Area. The service was established by Bylaw No. 3503, adopted on May 14, 2008.

PARTICIPATION:

Wilderness Mountain Local Service Area

MAXIMUM LEVY:

Greater of \$130,000 or \$3.27/ \$1,000 of actual assessed value of land and improvements to a maximum of \$141,190

MAXIMUM CAPITAL DEBT:

Maximum Authorized: \$281,000 (MFA Bylaw No.3504, Wilderness Mountain Water Service adopted on May 14, 2008)
Borrowed: \$281,000 (MFA Bylaw No.3504, Wilderness Mountain Water Service)

COMMISSION:

Wilderness Mountain Water Service Commission established by Bylaw No. 3511 (July 9, 2008).

FUNDING:

Consumption Charge:

Water Consumption charge will be collected from each Single Family Equivalent connected to the water system based on the rates defined in Bylaw No. 4074. For 2016, the consumption rate is a flat rate of \$18 per month.

User Charge:

50% of operating and maintenance cost net of water consumption recovery, will be collected as a user fee charged to each Single Family Equivalent connected to the water system. In 2016 the user fee is \$613.43 per SFE.

RESERVE FUND # 1075:

Approved by Bylaw No. 3535 adopted on November 12, 2008.

	2016		BUDGET REQUEST			FUTURE PROJECTIONS				
	BOARD BUDGET	ESTIMATED ACTUAL	2017 CORE BUDGET	2017 ONGOING	2017 ONE-TIME	2017 TOTAL	2018	2019	2020	2021
Wildemess Mountain Water Service										
<u>OPERATING COSTS:</u>										
Contract for Services	1,000	1,000	1,010	-	-	1,010	1,030	1,050	1,070	1,090
Allocations	14,180	17,870	14,040	-	-	14,040	14,330	14,620	14,910	15,210
Electricity	6,000	6,000	6,090	-	-	6,090	6,210	6,330	6,460	6,590
Supplies	3,700	2,300	3,760	-	-	3,760	3,830	3,900	3,980	4,060
Labour Charges	60,000	61,034	60,900	-	-	60,900	62,120	63,360	64,630	65,920
Contingency	8,360	-	8,540	-	-	8,540	8,710	8,880	9,060	9,240
Other Operating Expenses	7,770	12,906	8,060	-	-	8,060	8,200	8,340	8,480	8,640
TOTAL OPERATING COSTS	101,010	101,110	102,400	-	-	102,400	104,430	106,480	108,600	110,750
*Percentage Increase over prior year						1.4%	2.0%	2.0%	2.0%	2.0%
DEBIT/CAPITAL										
Transfer to Capital Reserve Fund	-	-	-	-	-	-	-	-	-	-
MFA Debt Principal	14,030	14,030	14,030	-	-	14,030	14,030	14,030	14,030	14,030
MFA Debt Interest	9,550	9,550	9,550	-	-	9,550	9,550	9,550	9,550	9,550
TOTAL CAPITAL / RESERVES	23,580	23,580	23,580	-	-	23,580	23,580	23,580	23,580	23,580
TOTAL COSTS	124,590	124,690	125,980	-	-	125,980	128,010	130,060	132,190	134,330
FUNDING SOURCES (REVENUE)										
Estimated Surplus c/f from 2016 to 2017	-	-	-	-	-	-	-	-	-	-
Surplus carried forward from 2015 to 2016	(21,000)	(21,000)	(42,940)	-	-	(42,940)	(43,800)	(44,660)	(45,570)	(46,480)
User Charge	(42,940)	(42,940)	(15,120)	-	-	(15,120)	(15,120)	(15,120)	(15,120)	(15,120)
Sale - Water	(15,120)	(100)	(50)	-	-	(50)	(50)	(50)	(50)	(50)
Other Income	-	(79,160)	(58,110)	-	-	(58,110)	(58,970)	(59,850)	(60,740)	(61,650)
TOTAL REVENUE	(45,530)	(45,530)	(67,870)	-	-	(67,870)	(69,040)	(70,210)	(71,440)	(72,680)
REQUISITION - PARCEL TAX										
*Percentage Increase over prior year requisition			49.1%				1.7%	1.7%	1.8%	1.7%

Service: 2.691 Wilderness Mountain Water Service

<u>Year</u>	<u>Taxable Folios</u>	<u>Parcel Tax</u>	<u>SFE's</u>	<u>Water Rate</u>	<u>User Charge</u>	<u>Tax & Charges</u>	<u>Bylaw</u>	<u>Assessments \$(000's)</u>
2012	82	\$704.39	69	\$216.00	\$558.81	\$1,479.20	3823	47,206
2013	82	\$782.41	69	\$216.00	\$570.59	\$1,569.00	3892	43,643
2014	82	\$811.73	70	\$216.00	\$566.50	\$1,594.23	3924	46,751
2015	82	\$853.94	70	\$216.00	\$613.43	\$1,683.37	3987	42,680
2016	82	\$584.39	70	\$216.00	\$613.43	\$1,413.82	4074	43,178
2017	82	\$871.14	71	\$212.96	\$604.79	\$1,688.88		

CAPITAL REGIONAL DISTRICT CAPITAL PLAN

CAPITAL BUDGET FORM
2017 & Forecast 2018 to 2021

Service #: 2.691
Service Name: Wilderess Mountain Water Service

By Capital Expenditure											
No.	Project Code	Capital Project Description	Asset Type	Funding Source	Carry Forward	2017	2018	2019	2020	2021	Total Project Budget
16-05	New	William Brook Reservoir - Transfer Agreement	L	Cap	2,500	-	-	-	-	-	2,500
17-01	New	Source Water Vulnerability Study	E	Res		25,000	-	-	-	-	25,000
17-02	New	Water Treatment Process Upgrade - Pre Filtration	E	Res		20,000	-	-	-	-	20,000
17-03	New	Water System - End of Line Flush	E	Res		5,000	-	-	-	-	5,000
17-04	New	Tank Safety Improvements	E	Res		20,000	-	-	-	-	20,000
				TOTAL ANNUAL CAPITAL EXPENDITURE		2,500	70,000	-	-	-	72,500

Funding Source Codes
 Debt = Debenture Debt (new debt only)
 ERF = Equipment Replacement Fund
 Grant = Grants (Federal, Provincial)
 Cap = Capital Funds on Hand
 Other = Donations / Third Party Funding
 Res = Reserve Fund
 STLoan = Short Term Loans

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

Capital Expenditure Type
 New Expenditure for new asset only
 Renewal Expenditure replaces an existing asset and extends the service ability or enhances technology in delivering that service
 Replacement Expenditure replaces an existing asset

Service: 2.691 Wilderness Mountain Water Service

Committee: Electoral Area Services

- 16-05 William Brook Reservoir - Transfer Agreement (\$2,500 Carry Forward)**
The William Brook reservoir was determined to be surplus to the needs of the water service and it is the ownership and operation of the dam and reservoir to another party. This expenditure related to the CRD staff and legal effort for the transfer, proposed to transfer
- 17-01 Source Water Vulnerability Study (\$25,000 in 2017)**
Study to determine the medium to long term vulnerability of the source water (Wilfred Reservoir) and its viability as a water source (quantity and quality) for the WMWS system in light of pressures such as projected demand changes and climate change. In addition, in light of the degradation of the source water that occurred in April - August 2016, determine if there are upgrades required to the Water Treatment Process to account for the raw water quality.
- 17-02 Water Treatment Process Upgrade - Pre Filtration (\$20,000 in 2017)**
The existing treatment system uses cartridge filters. These filters require frequent replacement during high turbidity events and have the potential to bypass when they become clogged. Several pre-treatment systems were investigated and a commercially available sand filter will be installed to pre-treat raw water prior to the cartridge system. This will reduce material entering the treatment system, extend the life of the cartridge filters, and reduce the potential of clogging.
- 17-03 Water System - End of Line Flush (\$5,000 in 2017)**
An end of line flush will be installed at 563 Wilderness Place to facilitate constant movement and turnover of water in the distribution system. This appertenance is intended to prevent water from becoming stale and to improve chlorine residual (long term disinfectant).
- 17-04 Tank Safety Improvements (\$20,000 in 2017)**
A safety platform is required on the round sloped roof tank to facilitate safe access when filling the tank and for maintenance access requirements.

Reserve Schedule

Reserve Fund: 2.691 Wilderness Mountain Water Capital Reserve Fund (Bylaw No.: 3535)

Reserve Cash Flow

	Estimate 2016	Budget				
		2017	2018	2019	2020	2021
Fund: 1075 Fund Center: 101994						
Beginning Balance	140,386	95,336	45,336	45,336	45,336	45,336
Transfer to Cap Fund (Based on Capital Plan)	(48,550)	(50,000)	-	-	-	-
Transfer from Operating Budget	-	-	-	-	-	-
Transfer from Cap Fund	3,500	-	-	-	-	-
Interest Income*	-	-	-	-	-	-
Ending Balance \$	95,336	45,336	45,336	45,336	45,336	45,336

Assumptions/Background:
Transfer as much as operating budget will allow

* 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.