



Making a difference...together

# FULFORD WATER SERVICE 2018 ANNUAL REPORT April 16, 2019

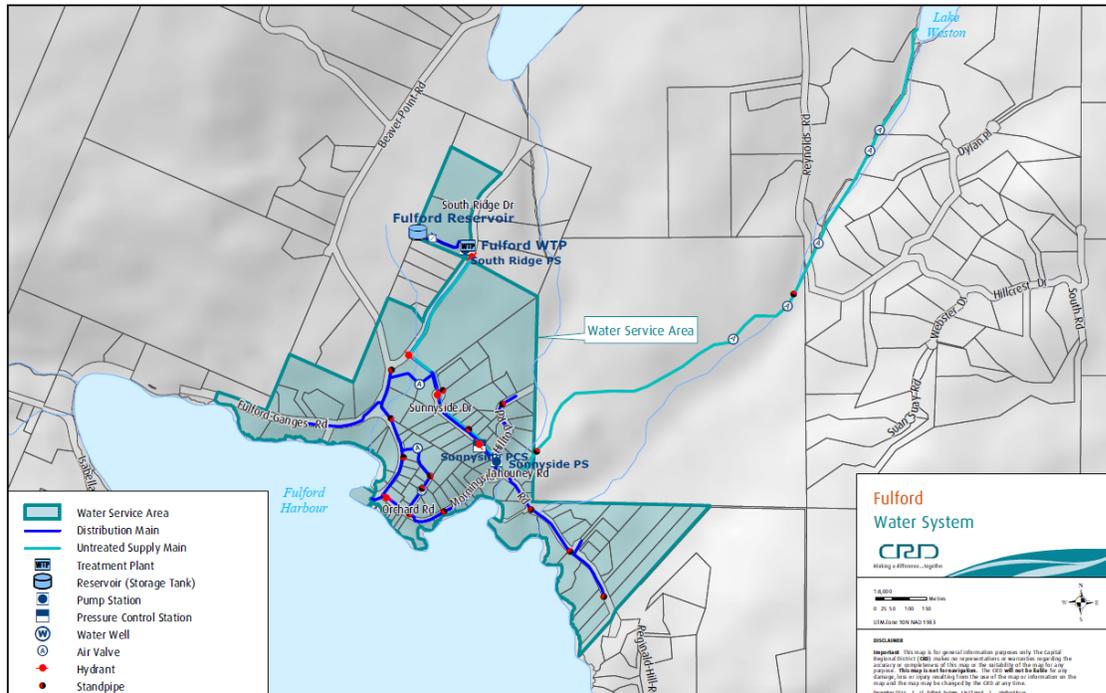
## Introduction

This report provides a summary of the Fulford Water Service for 2018. It includes a description of the service, summary of the water supply, demand and production, drinking water quality, operations highlights, capital project updates and financial report.

## Service Description

The Fulford Water Utility is a semi-rural residential community located on Salt Spring Island. It services the Fulford Elementary School and a small commercial component; including the BC Ferries Terminal. The service was created in 1968 as the Fulford Water Improvement District and became a CRD service in 2004. The Fulford Water Utility (Figure 1) is comprised of 102 parcels of land with 91 of those parcels connected. Within those 91 parcels, there are 95 single family equivalents (SFE) as the use on some parcels represent more than one dwelling.

The utility obtains its drinking water from Lake Weston, a small lake that lies within an uncontrolled multi-use watershed outside and northeast of the service area. The Capital Regional District (CRD) holds two licenses to divert a total of up to 291.6 cubic metres per day and store up to 49,339 cubic metres. Lake Weston is estimated to have a total volume of 1,090,000 cubic metres. Lake Weston is subject to seasonal water quality changes and is affected by periodic algae blooms.



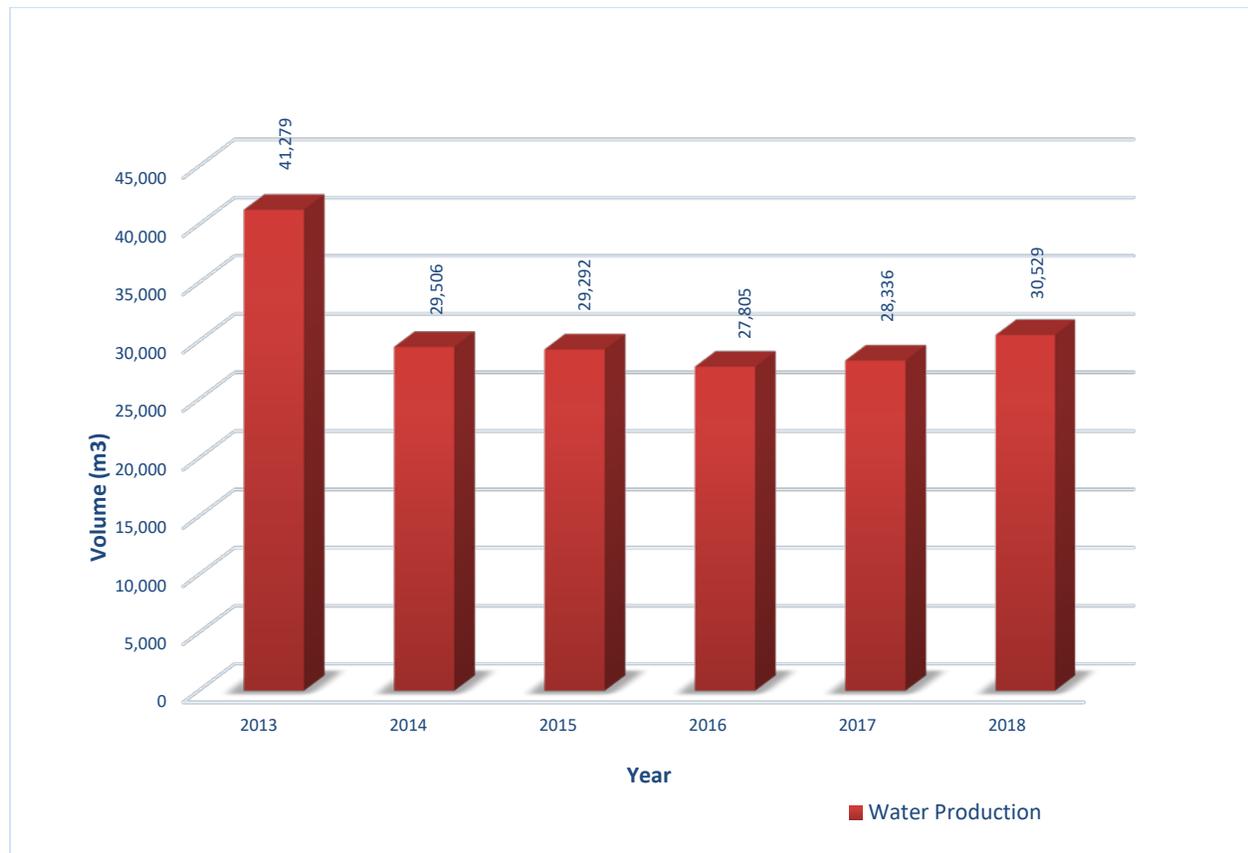
### Figure 1: Fulford Water Service

The Fulford water system is primarily comprised of:

- a water treatment plant (WTP) that draws water from Lake Weston and treats it at a location on South Ridge Drive, adjacent to the Fulford Elementary School. The water is treated using a rapid mix system, flocculation, dissolved air floatation (DAF) and filters, ultraviolet disinfection, then chlorination prior to being pumped, via the distribution system to a reservoir. The water treatment plant (WTP) design flow rate is 4.5 litres/sec (60 lpm);
- one raw water pump station on Sunnyside Drive near Hilltop Road (flow rate of two pumps running is 2.3 litres/sec (30 lpm));
- approximately 4,500 m of water distribution pipe;
- 1 water reservoir – 360 m<sup>3</sup> (80,000 l);
- fire hydrants, standpipes, and gate valves;
- water service connections complete with water meters on commercial properties only;
- 1 pressure reducing valve station on Sunnyside Drive near Hilltop Road.

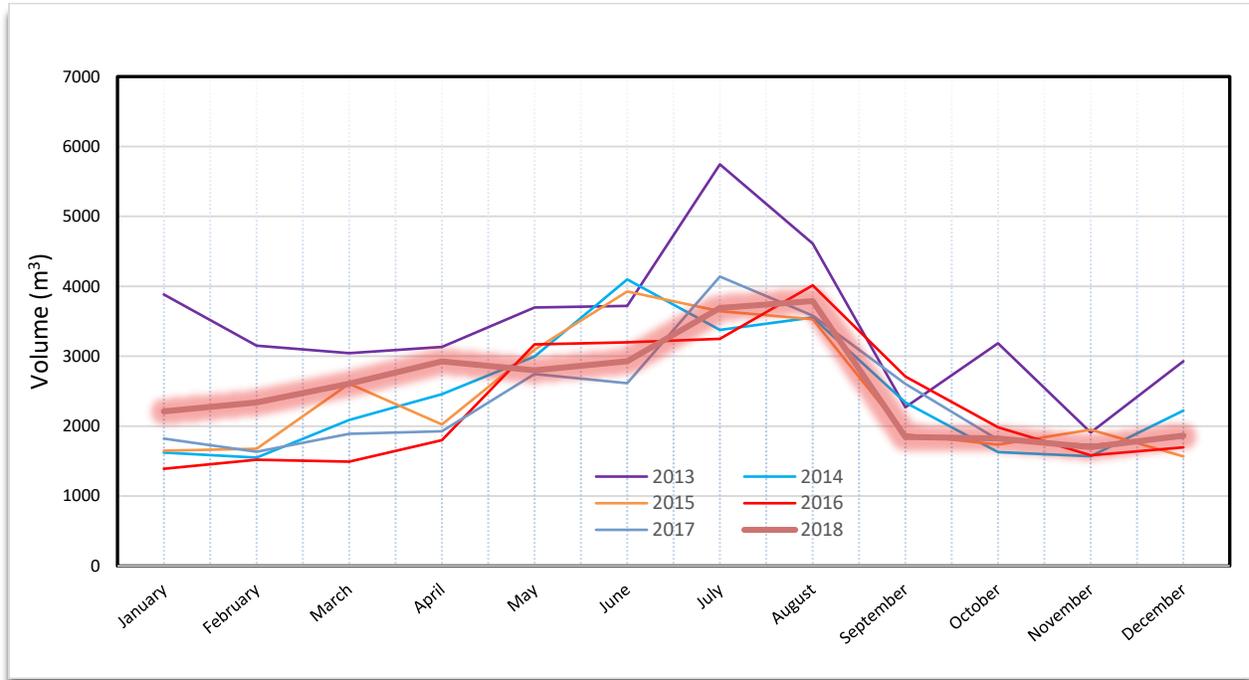
### Water Production and Demand

Annual water production since 2013 is shown in Figure 2. A total of 30,529 m<sup>3</sup> of water was extracted from Lake Weston in 2018.



**Figure 2: Fulford Water Service Annual Water Production**

Water production by month for the past six years is shown in Figure 3.



**Figure 3: Fulford Water Service Monthly Water Production**

The Fulford Water System does not have residential water meters and therefore the average per single family equivalent (SFE) is simply a calculated value. Utilizing 95 SFE and deducting an allowance of 20% for non-revenue water such as water system leaks, fire hydrant usage and water system maintenance and operational use (water main flushing, filter system backwashing), the average SFE is 257m<sup>3</sup> per year for 2018 compared to 238m<sup>3</sup> per year in 2017.

### Water Quality

In general, the Fulford Water System provided good quality drinking water to its customers in 2018. A number of samples for a variety of water quality parameters were collected and analysed throughout the year and confirmed that the DAF and disinfection treatment stages were effective in treating raw water from Lake Weston.

Typical Fulford drinking water quality characteristics for 2018 are summarized as follows:

#### Raw Water:

Lake Weston exhibited low concentrations of total coliform bacteria (TC) throughout most parts of the year with higher concentrations during the summer months. E. coli bacteria were only found in very low concentrations with slightly higher concentrations in the summer.

No parasitic cysts and oocysts (Giardia and Cryptosporidium) were detected in the raw source

water from the lake.

Raw water from the lake was slightly hard (~35.45 mg/L CaCO<sub>3</sub>).

A total organic carbon (TOC) concentration range from 5.60 to 6.01 mg/L indicates a mesotrophic (semi-productive) lake status. This has been consistent with historic data.

Two metal test results showed moderately low iron and very low manganese concentrations in the raw water. These metals in exceedance of the Guidelines for Canadian Drinking Water Quality (GCDWQ) limits can cause, if untreated, aesthetic issues such as water discolouration. The raw water colour was elevated consistently which may be a result of iron concentrations plus tannin and lignin, all natural components found in local lakes.

The raw water turbidity (cloudiness) was consistently very low with the highest values just over 1 nephelometric turbidity units (NTU) during the winter months.

### **Treated Water:**

Treated water was bacteriologically safe to drink; no indicator bacteria were found in any sample throughout the year.

Treated water turbidity was well below the GCDWQ limit of 1 NTU;

TOC (median 2.49 mg/L) in the treated water was slightly lower than in 2017. As TOC is a precursor for disinfection by-products, concentrations consistently much higher than 2 mg/L can lead to exceedances with these substances.

Disinfection by-products such as trihalomethanes (THM) were well below the GCDWQ limit of 100 µg/L with an annual average of 68 µg/L. In the past, there have been occasional single-test results above the guideline limit. Haloacetic acids (HAA) were not tested in 2018 due to a history of concentrations consistently well below the GCDWQ limit of 80 µg/L.

The water temperature was in exceedance of the aesthetic objective of 15°C between June 6 and September 12, 2018. There is no mitigation for this.

The free chlorine residual concentrations in the distribution system were within the desired range (0.41 – 1.70 mg/L) and indicate an effective secondary disinfection process.

Water Quality data collected from this drinking water system can be reviewed on the CRD website:

<https://www.crd.bc.ca/about/data/drinking-water-quality-reports/>

### **Operational Highlights**

The following is a summary of the major operational issues that were addressed during the 2018 operating period:

- Corrective maintenance performed on the chlorine analyser (sensor replacement).
- Watermain leak repair 2909 Fulford/Ganges Road
- Corrective maintenance of the water treatment plant water processing valve actuator. Electronic equipment repairs required.

- Replacement of failed water level transducer equipment located at the water treatment plant.
- Replacement of failed turbidity meter controller located at the water treatment plant.
- Emergency response to Dec 20<sup>th</sup> storm event.

### Capital Project Updates

The following capital projects were planned for 2018:

1. Water Main Replacement - Morningside Road at Weston Creek (\$37,000 allocated, \$34,200 spent): The water main along Morningside Road is exposed and spans Weston Creek making it susceptible to damage by people, vehicles, rocks or stream debris. There has been one failure at this site. Budget will be exceeded due to design costs, complexities around permitting and regulatory requirements, and anticipated higher than usual construction costs. Due to a budget shortfall, and being outside the window for work in and about streams this project was deferred until the next dry season (2019).
2. Asset Management Plan (\$10,000 allocated, \$8,034, spent): Phase 2 asset management plan to recommend a prioritized list of infrastructure replacements which will serve as the basis for future capital spending. This work was started in 2018, and should be completed in 2019.
3. Sunnyside Pressure Control Station (\$6,000 allocated, \$4,585 spent): Rebuild pressure control station and water meter. The piping within the pressure control station is showing signs of deterioration and requires replacement to avoid failures. This work was completed by Operations.
4. Reynolds Road – Decommission Strainer Facility (\$15,000 allocated, \$0 spent): The Reynolds Road Strainer Facility has reached the end of its useful life. The facility is to be decommissioned and the raw water straining process will be relocated or an alternate method of screening will be implemented. This work was deferred until 2020.

### 2018 FINANCIAL REPORT

Please refer to the attached *Statement of Operations*. Revenue includes parcel taxes (Transfers from Government), fixed user fees (User Charges), consumption based revenue (*Water Sales*) not metered, interest on savings (Interest Earnings), a transfer from the maintenance reserve account, and miscellaneous revenue such as late payment charges (Other Revenue).

Expenses includes all costs of providing the service. General Government Services includes budget preparation, financial management, utility billing and risk management services. CRD Labor and Operating Costs includes CRD staff time as well as the costs of equipment, tools and vehicles. Debt servicing costs are interest and principal payments on long term debt. Other Expenses includes all other costs to administer and operate the water system, including insurance, supplies, water testing and electricity.

The difference between Revenue and Expenses is reported as Net Revenue (expenses). Any transfers to or from capital or reserve accounts for the service (Transfers to Own Funds) are deducted from this amount and it is then added to any surplus or deficit carry forward from the prior year, yielding an Accumulated Surplus (or deficit) that is carried forward to the following year.

2018 User Fee charges were \$1,255.89 per Single Family Equivalent (SFE) and 2018 Parcel Tax charges were \$771.73 per Taxable Parcel.

The balances in the Fulford Water service capital funds and reserve accounts at December 31, 2018 were:

<b>Description</b>	<b>Balance</b>
Operating Reserve Fund	\$17,213
Capital Reserve Fund	\$99,187
Funds remaining to spend on projects in progress (WLA3758)	\$84
Funds remaining to spend on projects in progress (WSV185146)	\$12,081

**Water System Problems - Who to Call:**

To report any event or to leave a message regarding the Fulford water system, call either:

<b>CRD water system emergency call centre:</b>	<b>1-855-822-4426 (toll free)</b>
<b>CRD water system emergency call centre:</b>	<b>1-250-474-9630 (toll)</b>
<b>North Salt Spring Waterworks District (contract operator):</b>	<b>250 537-9902</b>
<b>CRD local operator (Ganges Wastewater Treatment Plant):</b>	<b>250-537-4314</b>
<b>CRD water system general enquiries (toll free):</b>	<b>1-800-663-4425</b>

When phoning with respect to an emergency, please specify to the operator, the service area in which the emergency has occurred.

Submitted by:	Matt McCrank, M.Sc., P.Eng, Senior Manager, Infrastructure Operations
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	Rianna Lachance, BCom, CPA, CA, Senior Manager Financial Services
	Karla Campbell, Senior Manager, Salt Spring Island Electoral Area

Attachment: Statement of Operations

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## CAPITAL REGIONAL DISTRICT

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### FULFORD WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2018

	2018	2017
<b>Revenue</b>		
Transfers from government	74,793	74,790
User Charges	119,309	118,845
Sale - Water	18,288	18,813
Other revenue from own sources:		
Interest earnings	167	138
Other revenue	4,376	380
Transfer from Operating Reserve Account		
Total revenue	<u>216,932</u>	<u>212,966</u>
<b>Expenses</b>		
General government services	9,020	8,500
Contract for Services	59,365	61,962
CRD Labour and Operating costs	39,613	34,475
Debt Servicing Costs	55,451	55,423
Other expenses	40,566	40,660
Total expenses	<u>204,015</u>	<u>201,020</u>
<b>Net revenue (expenses)</b>	12,917	11,946
Transfers to own funds:		
Capital Reserve Fund	5,917	9,684
Operating Reserve Account	7,000	2,262
<b>Annual surplus (deficit)</b>	-	-
Accumulated surplus, beginning of year	-	-
<b>Accumulated surplus, end of year</b>	<u>\$ -</u>	<u>-</u>

## CAPITAL REGIONAL DISTRICT

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### FULFORD WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2018

	Capital Reserve	
	2018	2017
<b>Beginning Balance</b>	70,865	79,433
Transfer from Operating Budget	5,917	9,684
Transfers from completed capital projects	41,782	5,819
Interest Income	1,623	929
Transfer to Capital Project	(21,000)	(25,000)
<b>Ending Balance</b>	<u>99,187</u>	<u>70,865</u>

	Operating Reserve	
	2018	2017
<b>Beginning Balance</b>	9,877	7,432
Transfer from/(to) Operating Budget	7,000	2,262
Interest Income	336	183
<b>Ending Balance</b>	<u>17,213</u>	<u>9,877</u>