Making a difference...together

FULFORD WATER SERVICE
ANNUAL REPORT ON OPERATIONS
17 April 2010

The following is provided for information to residents and users of the Fulford Water Service.

CAPITAL PROJECT

The Fulford Harbour Waterworks District (FHWD) was established to operate a water supply and distribution system providing water from Weston Lake to the Fulford Harbour community. The original system was developed circa 1960. The FHWD requested that the Capital Regional District (CRD) conduct a feasibility study to determine the criteria for conversion of the service, and that the CRD apply for an infrastructure grant on its behalf. A study was completed in April 2004, and the CRD submitted a grant application to the province based on the scope and estimated cost of capital improvements described in the study. A grant was awarded under the Canada/British Columbia Infrastructure Program (CBCIP) for the purpose of constructing a new water treatment plant to meet current drinking water standards, metering all water service connections, and modifying and upgrading distribution infrastructure as required for the new treatment plant. In November 2004 the CRD Board established the CRD Fulford Water Service, and in February 2005 the province dissolved the FHWD and transferred its assets to the CRD.

Contracts were awarded in 2005 for engineering, supply and construction of a reservoir, supply of prefabricated process components of a new water treatment plant and watermain and pump station construction. In 2006 the CRD received only a single bid for construction of the Beddis water treatment plant, nearly identical in design to the proposed Fulford plant. The bid exceeded the budget for plant construction by roughly 60 percent, forcing the Beddis Water Service Committee to reject the bid, and revealing that tendering construction of the Fulford water treatment plant in a single general contract would not be feasible within the project budget.

In October 2006 the committee approved proceeding with plant construction with the CRD as general contractor and with construction contracted in smaller stipulated price contracts or on a cost plus basis, using available local trades where practicable. The scope and design of plant construction were modified to reduce costs. While this approach was expected to reduce construction costs, it was also expected to defer the completion date. Despite the expected cost savings, it was anticipated at that time that in order to complete and commission the new plant and related distribution works, an increase in the overall project budget funded from available reserves would be required. It was also anticipated that available reserves would not likely be adequate to fund the installation of customer water meters as originally planned.

Current Project Status and 2010 Capital Plan

Commissioning of the water treatment plant was completed in October 2009, and the plant has been producing water into the distribution system continuously since November.

Supply and distribution works identified in the 2005 capital project are substantially complete, with the exception of the following tasks:

- Metered connections to new distribution mains on Sunnyside and Tahouney for properties currently served by mains that will become raw water pipeline (enabling the chlorinator at Reynolds Road to be decommissioned).
- Metered connection to the Fulford School, and fencing around reservoir.
- Complete metering of all remaining service connections.

A budget of $55,000 remains for completion of remaining distribution system connections in 2010. This work is scheduled to be completed in May, subject to verification of detailed cost estimates by the North Salt Spring Waterworks District. Fencing around the reservoir will be completed later in 2010, subject to available budget. Metering of remaining service connections in the Fulford water service area, estimated to cost in the range of $60,000, will require additional funding and will not proceed in 2010.

Project Financial Summary

The original (2004) project budget was $1,544,900, of which the CBCIP grant contributed $972,146. The balance of $572,754 was provided through borrowing under the Municipal Finance Authority (MFA) over a 15-year term, with the annual debt servicing cost of $52,510 recovered through parcel taxes levied in the Fulford water service area.

Staff reports presented to the committee in 2008 and 2009, projected that costs to complete the project would exceed the original budget by $200,000 to $366,000. The committee approved increases in the project budget including the full balance of available reserve funds in 2008, and $10,000 from the operating budget in 2009, bringing the approved budget to $1,803,030.

At the request of Regional Director Garth Hendren, in November 2009 the CRD Board authorized a grant of $75,000 under the Community Works Fund (Gas Tax Agreement) to aid in completion of the Fulford capital upgrade project. Of this funding, $30,000 was provided in 2009, and the balance of $45,000 is provided in 2010. As a result, the available project funding at December 31, 2009 was $1,833,030, offsetting an overall project expense of $1,827,982 upon completion of treatment plant commissioning.

The balance of $5,048, the 2010 Gas Tax grant, and an additional $5,000 sale of process control programming service, comprise an available budget of $55,048 for completion of the work planned for 2010. No funding from the project budget is expected to be available for installing customer water meters after 2010.

WATER SUPPLY AND DEMAND

A total of 38,628 cubic metres (m^3) of water was abstracted from Weston Lake in 2008, about 12% more than 2008 usage. Water production is presented in Figures 1 and 2.

Figure 1. Annual Water Production

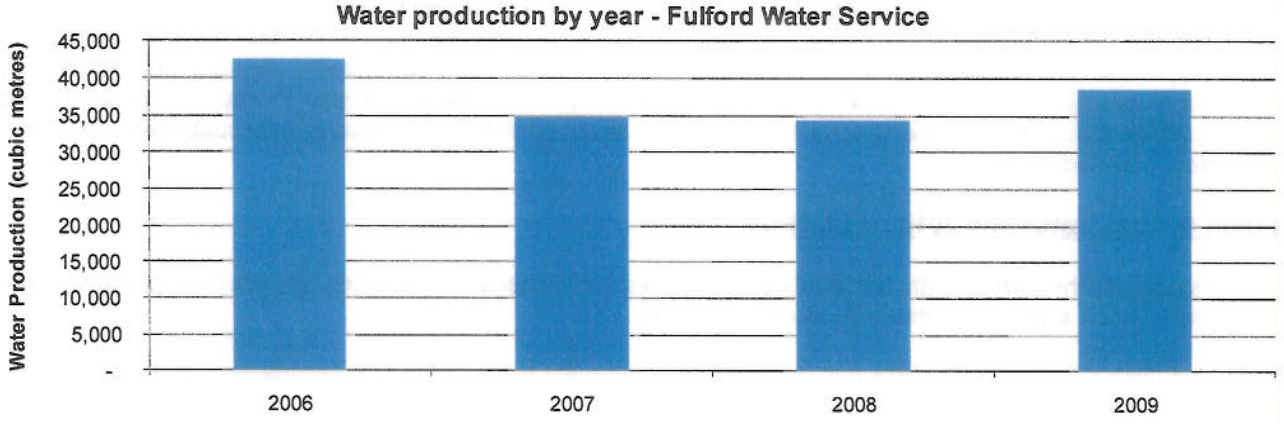
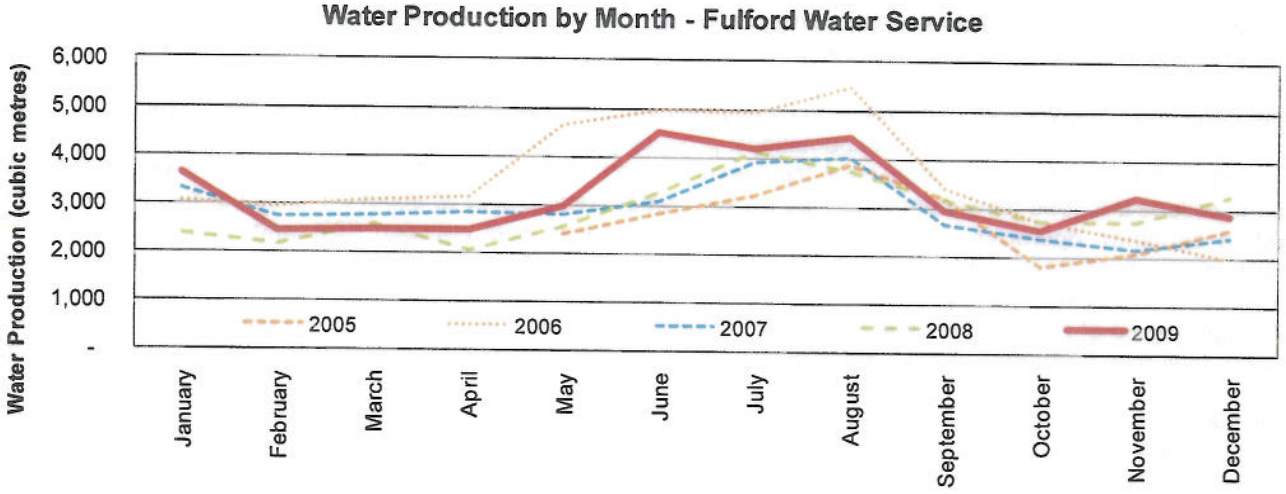


Figure 2. Monthly Water Production



Assuming a typical distribution water loss rate of 30% for a distribution system of the age and condition of the Fulford system, a typical single-family residence in the Fulford area uses roughly 220 m^3/year, which is similar to other CRD water service areas on Salt Spring Island with surface water sources, and is comparable to Greater Victoria usage. This suggests that although Fulford usage is relatively low for an unmetered system, significant conservation potential exists. Considering that landscape irrigation is a relatively small proportion of usage in the Fulford area (based on the nature of landscape areas in the service area and the relatively small seasonal variation in water supply into the system), reducing leakage in the distribution system and in customer plumbing (e.g. running toilets) are likely the largest water conservation opportunity areas.

WATER QUALITY

The CRD carries out regular testing of the water supply to monitor water quality for compliance with the guidelines set out in the *Canadian Drinking Water Guidelines (CDWG)*, and the requirements of the British Columbia *Drinking Water Protection Act* and *Regulation* as administered by the Vancouver Island Health Authority (VIHA). Water delivered to the Fulford area generally meets most criteria of the CDWG and VIHA standards. However, turbidity often exceeds 1.0 NTU, and the amount of chlorine that must be used to effectively disinfect the unfiltered source water poses a long-term health risk associated with by-products of the reaction of chlorine with organic matter in the water.

The new Fulford water treatment plant meets CDWG and VIHA standards using a treatment process based on dissolved air flotation (DAF), which is very well suited to the high algae content typical of the lakes in the Gulf Islands. The DAF process is followed by filtration and two-stage UV and chlorine disinfection, with a provision to add potassium permanganate as needed to neutralize toxins that can be produced by some algae blooms. Although the plant has served most of the community since November 2009 and is typically reducing turbidity below 0.1 NTU in the treated water, about 20% of the distribution system will not be connected to the new plant until May 2010. In the meantime, sampling and analysis of water in both parts of the distribution system has been conducted to ensure the water provided to all Fulford customers is safe to drink.

A mechanical malfunction of the chlorine dosing pump 26 October 2009 resulted in a short interruption of disinfection before the problem was identified and corrected. The CRD immediately posted a boil water advisory as a precaution, before confirming an acceptable chlorine residual and removing the advisory later the same day. Continuous monitoring and automated alarm shutdown systems in the new plant will greatly reduce the risk of similar water quality events in the future.

SYSTEM OPERATION

The Fulford water system is operated by the North Salt Spring Waterworks District (NSSWD) for the CRD. CRD staff provide technical support for operation and maintenance of the system. For most of 2009, the new DAF plant was off line, resulting in a lower than planned cost of overall operation.

Both CRD and NSSWD staff participated in commissioning and operation of the new treatment plant in 2009. The new plant is exceeding performance expectations, producing finished water turbidity in the range of 0.01 to 0.02 NTU in steady-state operation. Operators have focused efforts in the last few months on optimizing the water production rate to reduce the need for on/off cycles. By treating water continuously at about 0.7 litres per second (at current system demand), operators are able to maintain the reservoir level between 90% and 95% full at all times, maximizing available storage for fire protection and treatment downtime such as power outages. This approach has proven very successful, greatly reducing operator call-outs to the plant since January while benefiting water quality. The high degree of solids removal achieved by the DAF and filtration processes has already benefited distribution system operation by improving the stability of chlorine residuals and reducing bacterial re-growth in the watermains.

Until the Sunnyside and Tahouney connections are made to the distribution mains supplied from the new plant, the old chlorinator at Reynolds Road will need to continue to operate. The operator is maintaining the chlorinator and conducting adequate sampling and analysis to ensure safe drinking water to every customer. Achieving steady-state operation of the new plant has enabled the operator to maintain the entire water system within budget under the favourable conditions that have occurred in the past few months (mild weather, and no significant emergency maintenance). Decommissioning the chlorinator will make more operator time available to accommodate the increased flows and poorer source water quality typical of summer operation, and unplanned work such as leaks or watermain breaks.

2009 OPERATING REVENUE AND EXPENSE

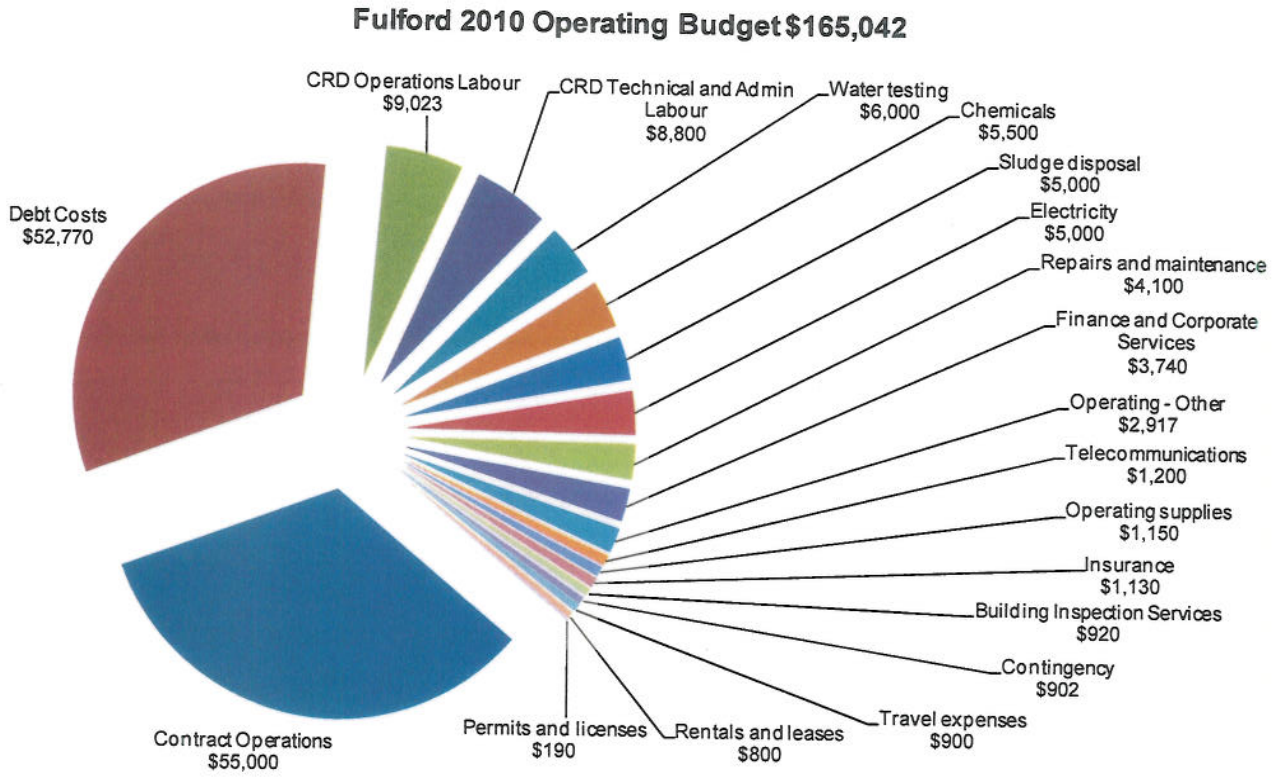
Attached is a copy of the *Statement of Financial Activities* as prepared by the CRD Finance and Corporate Services for the year 2009. The statement provides an overview of the revenues and expenditures for the year. Revenues are generated primarily through parcel taxes (transfers from government) and user fees (sale of services), and other revenue including connection charges, interest on savings, and late payment charges.

Expenditures include all costs to administer the service. General government services and other fiscal services are charges levied by CRD Corporate Services for the financial processing of the budget, and collection of fees and charges, and administration of loans. Other includes all expenses needed for the operation of the service including all CRD and contract labour costs for operation, maintenance and repairs, administrative and technical support; as well as chemicals, electricity, water testing, parts and supplies, insurance, rentals, and allowances for technical and staff support to the committee, and payment of principal and interest on loans for capital expenditures. Figure 3 shows an approximate breakdown of expenses (2010 operating budget).

If there is a significant operating surplus, funds may be transferred to a reserve or capital project account. The remaining balance is then applied to any surplus or deficit carried forward from the prior year. Regional District services are not permitted to plan to carry forward a deficit, so a deficit in a given year typically requires a tax or fee increase in the following year to recover costs and prevent a subsequent deficit.

Fulford revenue in 2009 included a substantial connection charge associated with a single property, where a watermain extension was required to provide a service connection. This revenue is offset by the cost of connection, which is included in other expenditures. Revenues in 2009 exceeded expenses by $6,360, adding to a 2008 surplus of $11,880. A transfer of $10,000 to the capital project resulted in a surplus of $8,240 carried forward to 2010. The Fulford Water Service Capital Reserve Fund held a balance of $0 at 31 December 2009.

Figure 3. 2010 Operating Budget – Fulford Water Service



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CAPITAL REGIONAL DISTRICT

WATER REVENUE FUND
STATEMENT OF FINANCIAL ACTIVITIES (UNAUDITED)
For the year ended December 31, 2009

		Fulford Water Supply
REVENUES		
Transfers from government	$	60,617
Sale of services		72,275
Other revenue from own sources:		
Interest earnings		575
Other revenue		35,293
Grants in lieu of taxes		35
		168,795
EXPENDITURES		
General government services		3,980
Grants in aid		-
Other		158,267
Salaries and wages		-
Other fiscal services		188
Recovery		-
		162,435
NET REVENUES (EXPENDITURES)		6,360
Transfers to own funds:		
Water Capital Fund		10,000
Reserve Funds		
Equipment Replacement Fund		
Transfers from own funds:		
Reserve Funds		
CHANGE IN FUND BALANCE		(3,640)
Opening balance		11,880
CLOSING BALANCE	$	8,240