

Cedar Lane Water System

2019 Annual Report

CRD | Drinking Water

Introduction

This report provides a summary of the Cedar Lane Water Service for 2019. 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 Cedar Lane Water Utility is a rural residential community located on Salt Spring Island. The service was created in 1970 and became a CRD service in 2007. The Cedar Lane Water Utility (Figure 1) is comprised of 37 parcels of land of which all are connected to the system.

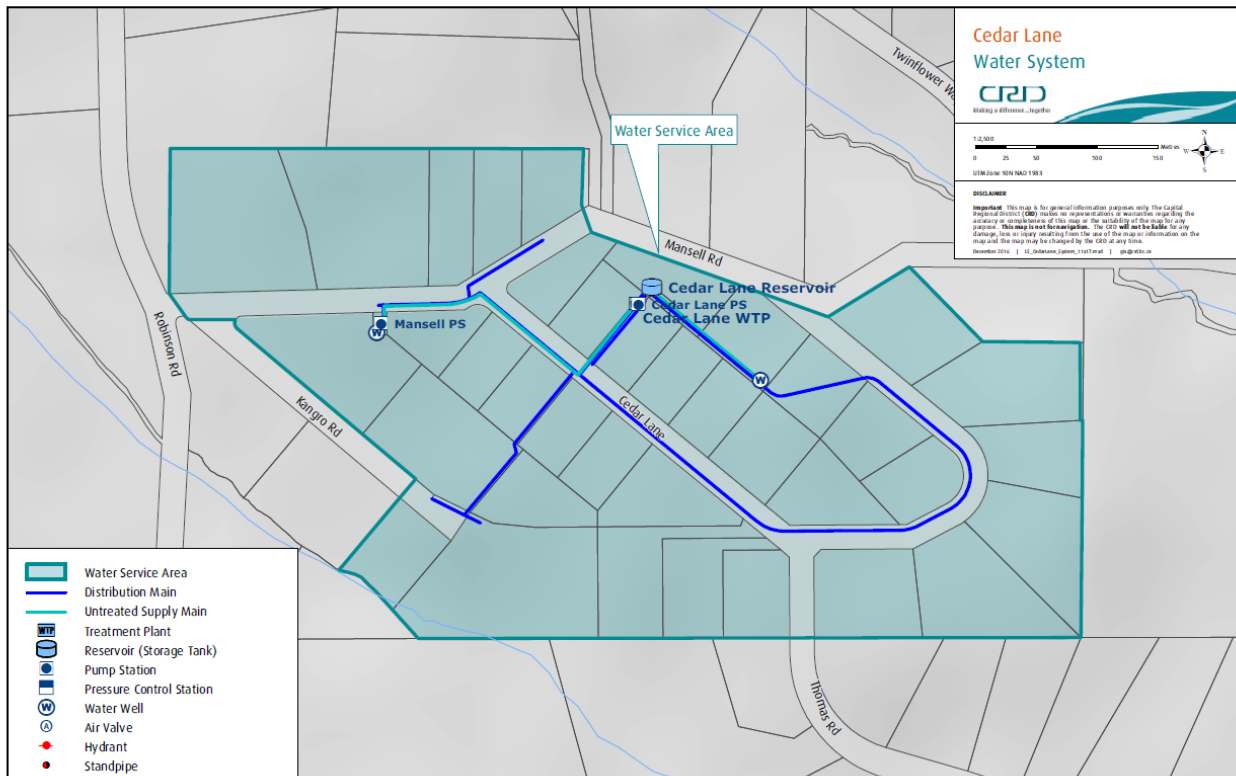


Figure 1: Cedar Lane Water Service

The Cedar Lane water system is primarily comprised of:

- two ground water source wells (#1 and #5)
- a water treatment plant (WTP) that provides primary disinfection with ultraviolet (UV) radiation and residual disinfection using sodium hypochlorite;
- 1 water reservoir – 136 m³ (30,000 lg);
- 1,260 metres of water distribution pipe;
- fire hydrant, standpipes, and gate valves;
- water service connections complete with water meters.

Water Supply

Referring to Figure 2, 3,478 cubic meters (m³) of water was extracted (water production) from two ground water wells in 2019; a 11% decrease from the previous year and is an 8% decrease from the five year average. Water demand (customer water billing) for the service totaled 3,251 m³ of water; a 7% decrease from the previous year and a 8% decrease from the five year average.

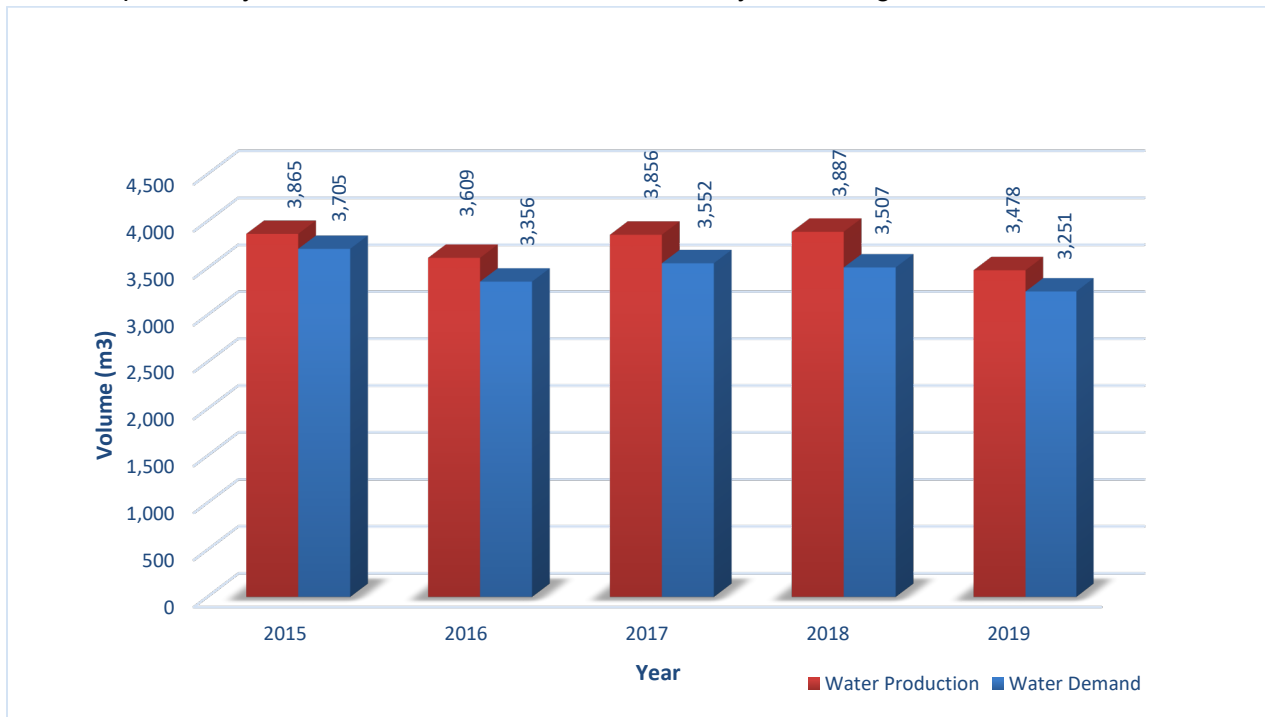


Figure 1: Cedar Lane Water Service Annual Water Production and Demand

Water production by month for the past five years is shown in Figure 3. Water consumption, for most water systems, is greatest during the summer months. Water usage for Cedar Lane is fairly consistent throughout the year likely the result of conservative indoor and outdoor water use.

Water Usage

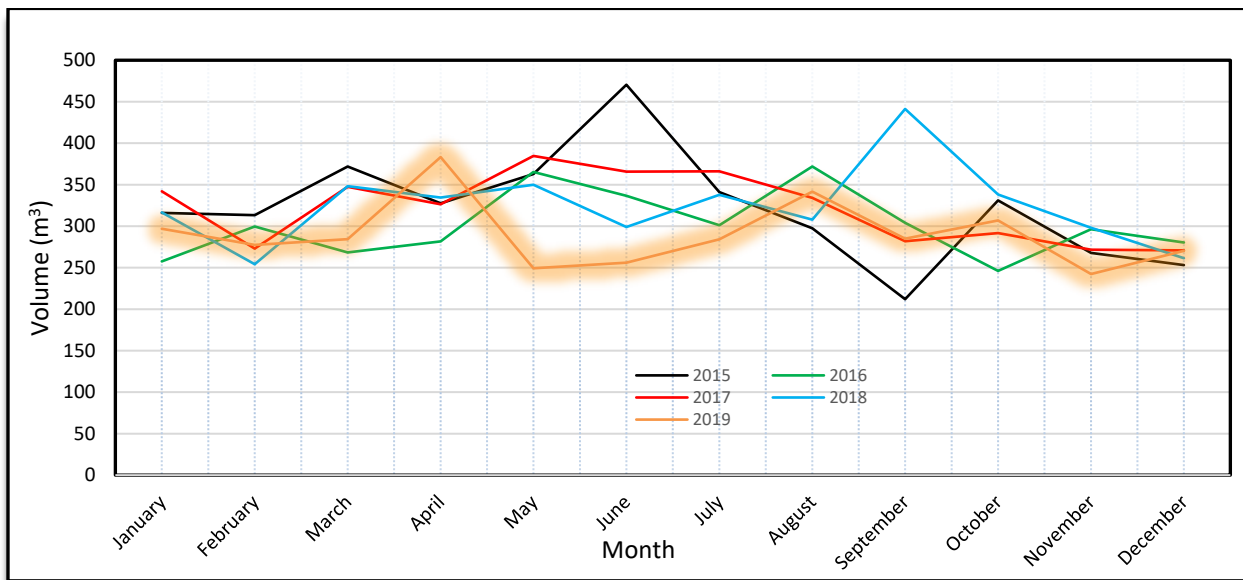


Figure 3: Cedar Lane Water Service Monthly Water Production

The Cedar Lane Water System is fully metered, and water meters are read quarterly. Water meter information enables water production and consumption to be compared in order to estimate leakage losses in the distribution system. The difference between water produced and water demand (total metered consumption) is called non-revenue water and includes distribution leaks, meter error, and unmetered uses such as fire hydrant usage, distribution system maintenance and process water for the treatment plant. Non-revenue water is approximately 7%. Water loss is estimated to be approximately 5% which is considered to be acceptable for a small water system such as Cedar Lane.

Drinking Water Quality

The analytical results (biological, chemical and physical parameters) of water samples collected in 2019 from the Cedar Lane Water System indicated that the water was safe to drink. Naturally high manganese concentrations in the well water remain insufficiently treated and regularly exceed the aesthetic limits and occasionally the health limits established in the Guidelines for Canadian Drinking Water Quality (GCDWQ). Associated precipitates have been a significant nuisance problem in parts of the Cedar Lane water system and cause discolouration of the drinking water. In order to meet the newly introduced health limit for manganese concentrations in drinking water, the existing treatment system must be upgraded or a new water source must be found.

While both wells ran alarmingly low during the dry summer months, Well #1 exhibited repeatedly elevated turbidity following heavy rainfall events in the winter.

Typical Cedar Lane Water System drinking water quality characteristics for 2019 are summarized as follows:

- Source water from both wells was free of any total coliform or *E. coli* bacteria.
- Both wells registered periods with elevated turbidity throughout the year. The periods were predominantly during the winter months. These exceedances were mostly just slightly above 1 NTU

but on August 12, 2019, Well #1 recorded an unusual turbidity of 5.6 NTU which was likely related to extremely low water levels in the well during the late summer period.

- Source water is characterized as hard (~138 mg/L CaCO₃).
- Both wells exhibited elevated iron and especially high manganese concentrations.
- Well #5 registered a high lead concentration (9.29 µg/L) in a sample from February 19, 2019. This is very unusual and none of the downstream samples collected the same day exhibited any elevated lead concentration. And historically, lead has not been found anywhere in the raw water as well as in distribution system samples in concerning concentrations. It is assumed that this lead result was due to a sampling or lab error.
- Treated water was safe to drink and contained no total coliform or *E. coli* bacteria.
- Free chlorine residual concentrations were acceptable and within the desired range (i.e., 0.30 – 1.26 mg/L)
- Disinfection by-products: trihalomethanes (THM) were well below (28.5 µg/L) the GCDWQ limit of 100 µg/L, haloacetic acids (HAA) were not tested in 2019 due to a history of very low concentrations in this system.
- Metals were typically below limits except for elevated manganese concentrations. The mean annual manganese concentration of 110 µg /L in the treated water was consistently above the aesthetic objective in the GCDWQ (20 µg/L) and led regularly to discoloration of the drinking water. But it was also occasionally above the maximum health limit of 120 µg/L, especially in parts of the system that are immediately downstream of the treatment plant. CRD staff are working on mitigation strategies for this issue.

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 2019 operating period:

- Leak detection efforts in response to high water production (3 separate events)
- Replace water service line to 160 Cedar Lane
- SCADA system repairs
- UV system repairs

Capital Project Updates

There were two projects planned for 2019:

1. Asset Management Plan, (\$5,000 allocated, \$4,547 spent). Asset management plan will recommend a prioritized list of infrastructure replacements, which will serve as the basis for future capital spending plans. This work was continued in 2019 and is expected to complete in 2020.
2. Safe Work Procedures (\$5,000 allocated, 0 spent). The work scope includes reviewing and developing safe work procedures for operational and maintenance tasks. The work was not started in 2019. However it has commenced in early 2020 and is expected to complete in 2020.

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), 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 Labour 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.

2019 User Fee charges were \$1,058.11 from January to June and \$960.81 from July to December per Single Family Equivalent (SFE) as the result of Fee and Charges Bylaw Amendment due to water sale rate changes during the year. 2019 Parcel Tax charges were \$372.36 per Taxable Parcel.

Water System Problems - Who to Call:

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

CRD water system emergency call centre: 1-855-822-4426 (toll free)
CRD water system emergency call centre: 1-250-474-9630 (toll)
CRD water system general enquiries (toll free): 1-800-663-4425

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 Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection Rianna Lachance, BCom, CPA, CA, Senior Manager, Financial Services Karla Campbell, Senior Manager, Salt Spring Electoral Area
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Making a difference...together

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CAPITAL REGIONAL DISTRICT

CEDAR LANE WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2019

	2019	2018
Revenue		
Transfers from government	13,090	21,266
User Charges	37,350	31,631
Sale - Water	9,475	8,799
Other revenue from own sources:	-	-
Interest earnings	189	23
Other revenue	227	1,029
Transfer from Operating Reserve	-	8,831
Transfer from Capital Reserve to pay debt	-	24,024
Total Revenue	60,331	95,603
Expenses		
General government services	2,992	3,230
Contract for Services	19,092	22,614
CRD Labour and Operating costs	4,776	17,091
Debt Servicing Costs	9,448	37,778
Other expenses	11,132	13,890
Total Expenses	47,439	94,603
Net revenue (expenses)	12,892	1,000
Transfers to own funds:		
Capital Reserve Fund	10,392	-
Operating Reserve Fund	2,500	1,000
Annual surplus (deficit)	-	-
Accumulated surplus, beginning of year	-	-
Accumulated surplus, end of year	\$ -	-

CAPITAL REGIONAL DISTRICT

CEDAR LANE WATER Statement of Reserve Balances (Unaudited) For the Year Ended December 31, 2019

	Capital Reserve	
	2019	2018
Beginning Balance	84,599	106,463
Transfer from Operating Budget	10,392	-
Transfers from completed capital projects	-	-
Interest Income	2,344	2,159
Transfer to Capital Project	(5,000)	(24,024)
Ending Balance	92,334	84,599

	Operating Reserve	
	2019	2018
Beginning Balance	20,832	27,983
Transfer from Operating Budget	2,500	1,000
Transfer to Operating Budget	-	(8,831)
Interest Income	603	680
Ending Balance	23,935	20,832