

# Port Renfrew

## Water and Sewer Systems

2016 Annual Report

**CRD** | **Drinking Water**

### **Introduction**

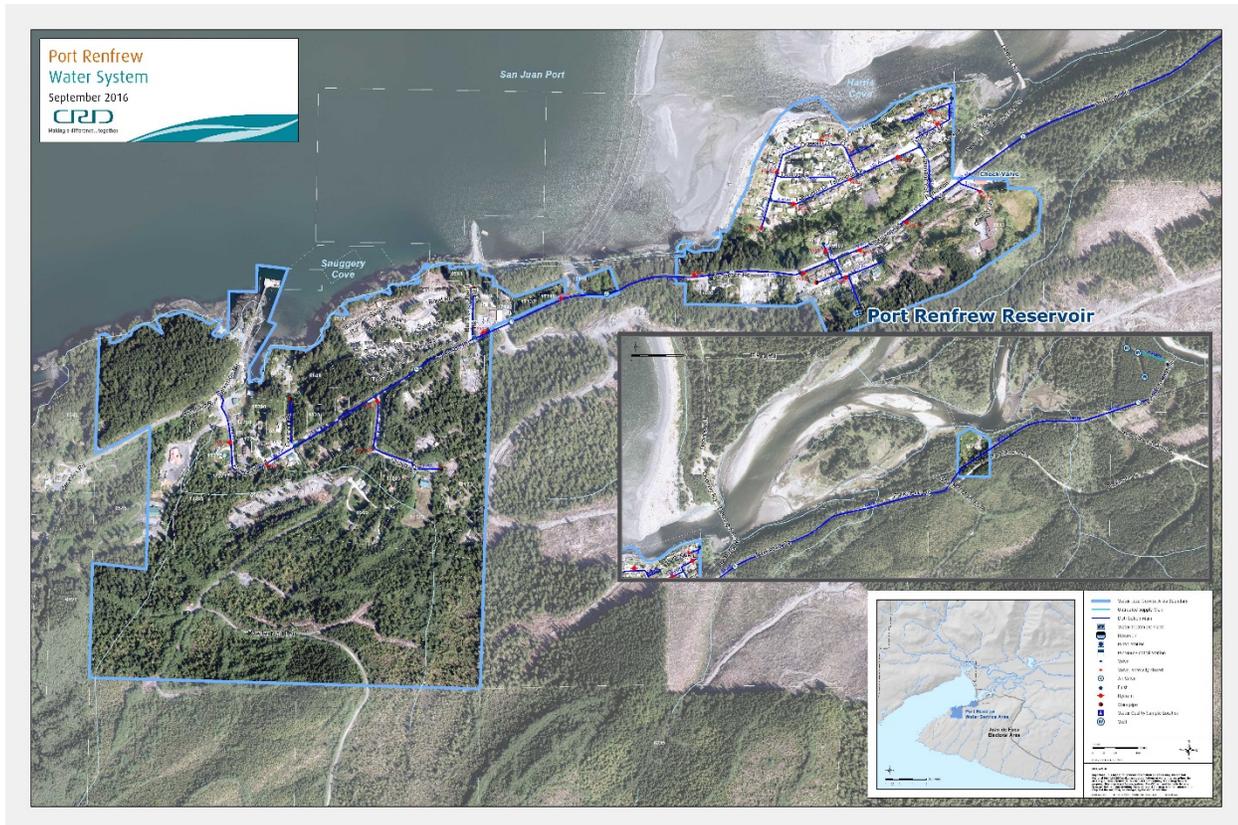
This report provides a summary of the Port Renfrew Utility Services for the year 2016. This report includes a description of services as well as a summary of the water, sewer, street lighting, and refuse disposal services in terms of operations, maintenance, capital upgrades, and finances for each service.

### **Port Renfrew Utility Services Committee**

The PRUSC has authority delegated by the Capital Regional District (CRD) Board for provision of water, sewer, street lighting and refuse disposal for the Port Renfrew community. Refuse disposal service is also provided to the Pacheedaht First Nation under a service delivery agreement. This Annual Report relates to the services provided under the authority of the PRUSC.

### **WATER SERVICE DESCRIPTION**

The community of Port Renfrew is comprised of rural residential as well as commercial and institutional development and is located in the Juan de Fuca Electoral Area of the CRD. The Port Renfrew water service was originally owned by a forestry company and was transferred to the CRD in 1989 to service the Beach Camp area. In 2002, the water service area was extended to include the Snuggery Cove area and again in 2016 to include the lands to the south of Beach Camp. The water service consists of approximately 250 parcels encompassing a total area of approximately 98.3 hectares. Of the 250 parcels, 166 were customers to the water system in 2016.



**Figure 1: Map of the Water Service Area.**

The Port Renfrew water system is primarily comprised of:

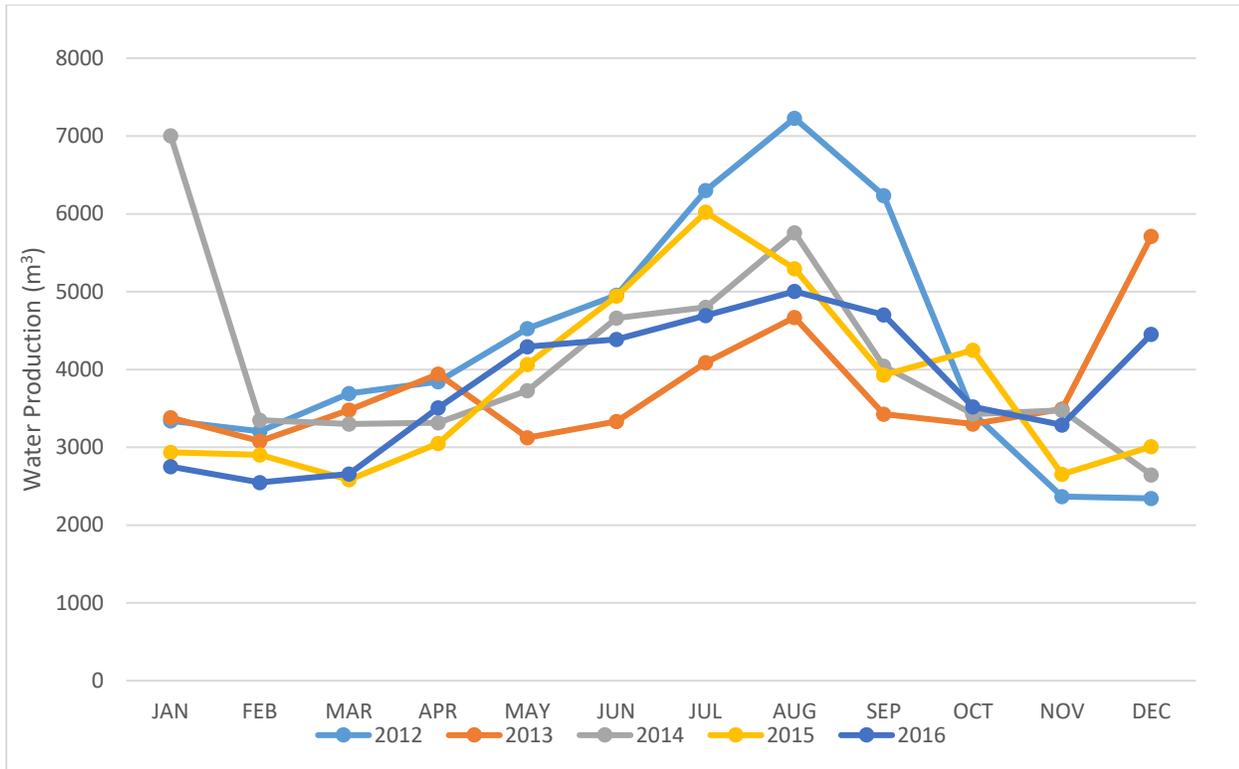
- One groundwater well, related pumping and control equipment and building.
- Disinfection process equipment (chlorine) and an aeration tower/scrubber for hydrogen sulfide reduction to improve water taste and odour.
- One steel storage tank (total volume is 454 m<sup>3</sup>).
- Distribution system (4,400 m network of 150 mm and 100 mm AC water mains to the Beach Camp Area and a 2,100 m network of 150 mm and 100 mm PVC water mains to the Snuggery Cove area).
- Other water system assets: 166 service connections, 25 hydrants and an auxiliary generator.

## Water Supply

In November 2016 the CRD started collecting data of the groundwater levels which will allow for well water level reporting for the 2017 annual report.

## Water Production and Demand

Referring to Figure 2, 45,803 m<sup>3</sup> of water was extracted (water production) from the well in 2016; a very small increase of less than half a percent over the previous year and a 4% decrease from the 5 year average. The monthly comparison of treated water volumes produced for the years 2012 to 2016 inclusive shows the continued trend of higher production in the summer months. However the voluntary conservation efforts of the community have minimized the increase for the past few years. Singular spikes in monthly well extraction are largely attributable to recorded water main and service failures.



**Figure 2: Port Renfrew Utility Water Service Monthly Water Production**

### Drinking Water Quality

The analytical results (biological, chemical and physical parameters) of water samples collected in 2016 from the Port Renfrew water system indicated that the drinking water was of good quality and within Guidelines for Canadian Drinking Water Quality health-related regulatory and aesthetic limits, including disinfection by-products. While the treated water temperature did exceed the aesthetic limit of 15°C during the summer months, this had no other negative impact on the drinking water quality.

Typical Port Renfrew drinking water quality characteristics for 2016 are summarized as follows:

#### Raw Water

- Source water from the well was void of any total coliform and *E. coli* bacteria.
- The well water was low in iron and manganese concentrations, slightly hard and had a neutral pH of 7.4.

#### Treated Water

- No total coliform or *E. coli* bacteria were found in the treated water, the water delivered to the customers was therefore safe to drink.
- Turbidity was well under 1 NTU.
- The mean annual free chlorine concentration in the distribution system was an acceptable 0.49 mg/L.

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/juan-de-fuca-water-quality-reports/port-renfrew-water-quality-reports>

### **Water Service Operational Highlights**

The following is a summary of the major operational issues that were addressed by the CRD Integrated Water Services staff:

- There were no major operational issues in 2016 which therefore allowed staff to focus on preventative maintenance programs.
- November, 2016 – with the well pump and associated equipment replacement complete staff have now been recording the level of the water in the well. This will permit the evaluation of water supply fluctuations and trending over time.

### **Water Service Capital Project Updates**

The Capital Projects that were completed in 2016 included:

1. Strategic Asset Management Plan – a comprehensive assessment of the water system is proposed for the future, but in the interim, the capacity and reliability study prepared for the system in 2015 will be used to guide future water system improvements.
2. Wellhead Protection – as a result of an inspection conducted by the Vancouver Island Health Authority, a building was constructed to enclose the wellhead to reduce the risk of contamination and vandalism.
3. Well Pump and Booster Pump Replacement – in 2015 two phases of proposed water system improvements to facilitate development were agreed to between the CRD and several developers. The first phase was constructed in 2016 and the improvements included well and booster pumps replacement and other related equipment to increase the capacity of water systems to facilitate development. The improvements were funded by contributions from developers.
4. Chlorine Injection Pump and Flow Meter – a chlorine injection pump and flow meter were provided to supplement the Phase 1 developer improvements and the expenditure was funded from the CRD's Community Works Fund (gas tax).
5. Water Main Extension – the distribution system is due to be extended to service lands along Powder Main Road. This work is fully funded by the developer and the works will be turned over to the CRD when certified as complete. The work includes approximately 170 m of 150 mm diameter water main and service piping.
6. Osprey Place Pressure Study – the capital assignment to identify options to increase water pressure at Osprey Place was conducted and a report on the issue delivered to the committee at its November 2016 meeting.
7. Conceptual Dedicated Water Supply Main – the assignment to study the conceptual dedicated water supply main was completed and the results were delivered to the committee at its November meeting.

## SEWER SERVICE DESCRIPTION

The Port Renfrew sewer system serves 87 properties in the Beach Camp and localized residential area above and has continued to operate reliably in the past year although the wastewater treatment plant (WWTP) had difficulty processing peak flow events. The treatment process consists of an extended aeration facility and a steel outfall which discharges treated effluent to the San Juan River estuary under Ministry of Environment permit. The 87 properties are comprised of 94.77 Single Family Equivalents (SFEs).

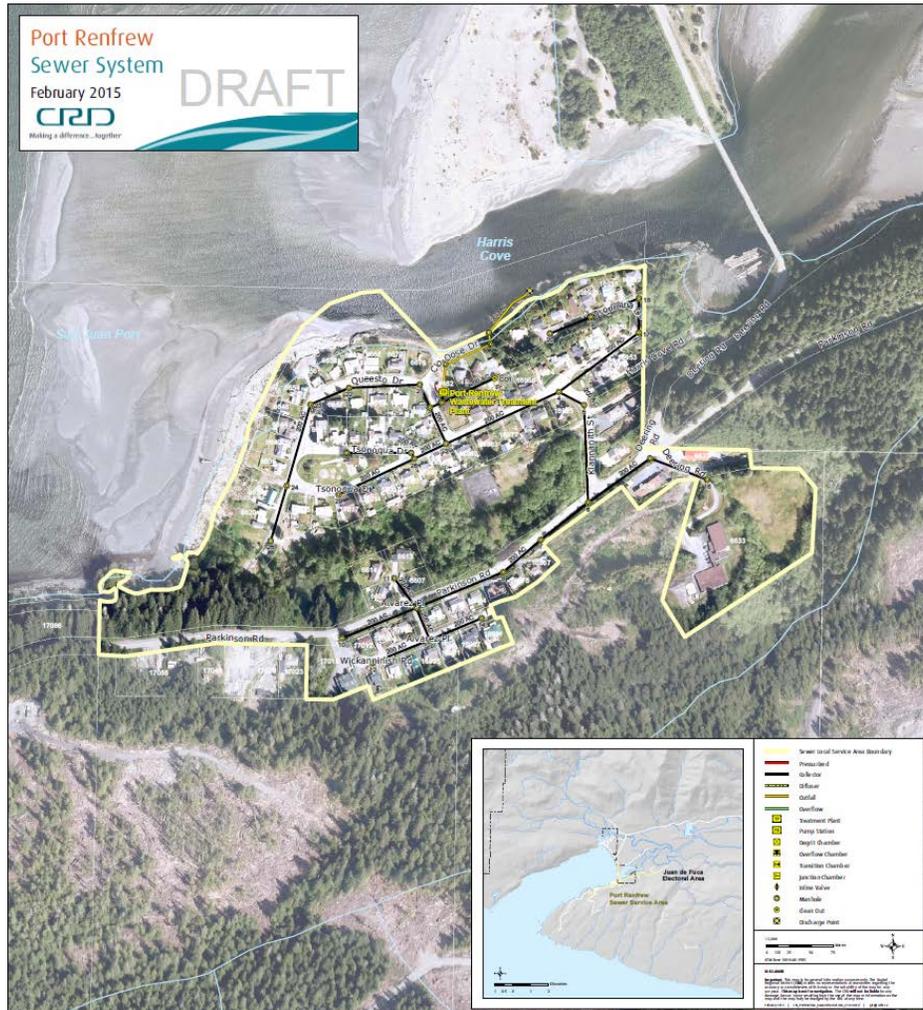
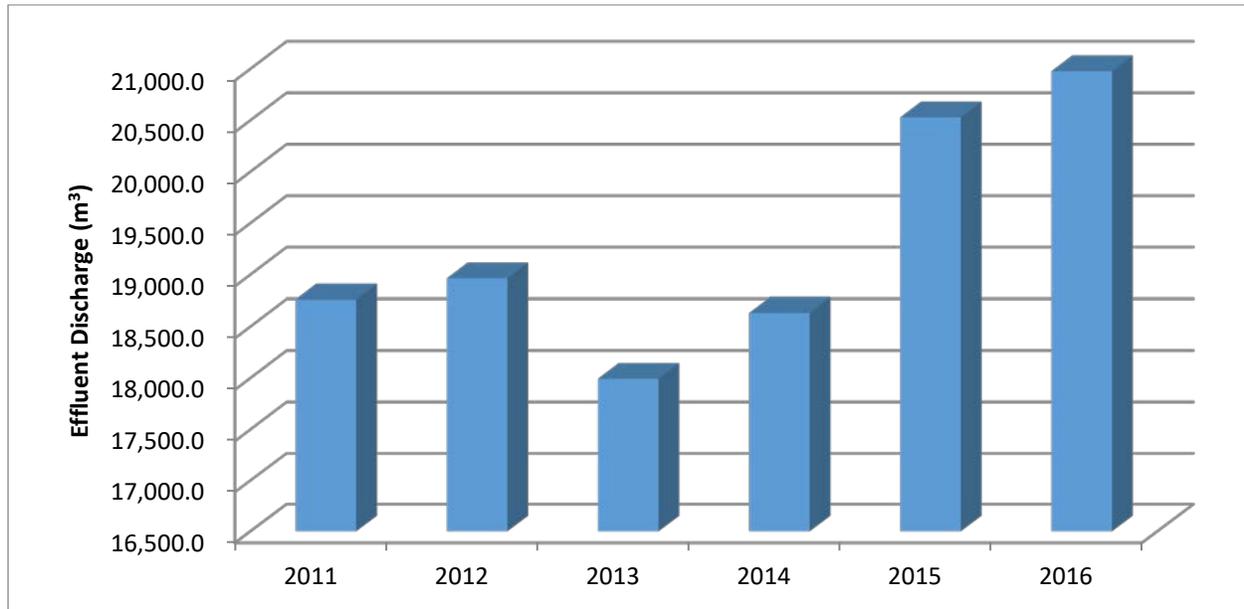


Figure 3: Map of the Sewer Service Area.

A sewage volume of 20,977 m<sup>3</sup> was treated and discharged in 2016 which equates to an average of 221 m<sup>3</sup>/SFE. Sewage flows in Port Renfrew continue to trend upward primarily due to people spending more time in Port Renfrew (especially during the summer season) as well as inflow and infiltration that occurs during wet weather conditions. During the rainy season, inflow and infiltration water enters the sewer system through cracks and defects in the old pipes and manholes that were installed in the 1960's.

**Figure 4** shows Port Renfrew sewer flow trends over the last six years. The flows in 2016 were approximately 2.2% higher than 2015.



**Figure 4: Port Renfrew Sewer Flow Trends 2011-2016**

### **Treated Effluent Discharge Quality**

#### **Regulatory Compliance – Wastewater**

Flow and effluent quality are assessed for compliance with the provincial discharge permit on a daily and monthly basis, respectively. Mean daily flows in 2016 were in the upper range of flows measured since 2007, but there were no exceedances of the allowable total daily flow maximum. Wastewater met all effluent quality requirements, with no exceedances of permitted limits observed (although effluent sampling often did not take place during peak flow events as grab samples are collected once per month).

#### **Receiving Water**

Routine receiving water monitoring was conducted at the Port Renfrew WWTP in 2016. All stations had a geometric mean less than provincial and federal guidelines for enterococci and fecal coliforms indicating that the waters around the outfall were safe for recreational activities.

#### **Sewer Service Operational Highlights**

The following is a summary of the major operational issues that were addressed by the CRD Integrated Water Services staff:

- There were no major operational issues in 2016 which therefore allowed staff to focus on preventative maintenance programs.

## Sewer Service Capital Project Updates

There have been no capital expenditures on the wastewater system for a few years now and only one is proposed for 2017 which is to complete a Strategic Asset Management Plan. A Strategic Asset Management Plan will include information from past studies on condition and age of the existing infrastructure and recommend a prioritized list of infrastructure replacements, which will serve as the basis for future capital spending plans.

In future years it is expected that funds will need to be borrowed to replace parts of the aging sewer system and to increase the capacity of the treatment plant, to accommodate the increasing wastewater flows.

## STREET LIGHTING SERVICE

Street lighting service is provided in the area of Port Renfrew known as Beach Camp. The street lights are operated and maintained by BC Hydro, and costs are recovered through a parcel tax and user charge on parcels in the area where the service is provided. There were no significant issues with this service in 2016.

## Refuse Disposal Service

The Port Renfrew Refuse Disposal service serves 332 properties (289 residential folios) within the service area and is funded through direct tax requisition based on the value of each property. The Pacheedaht First Nation also utilizes the facility through fee-for-service agreement. The tonnages of materials received and transferred at the Port Renfrew facility in 2016 are as follows:

Garbage	175 tonnes (22% increase from 2015)
Recyclables:	
Paper fibres	20 tonnes (14% decrease from 2015)
Glass/metal/plastic containers	6 tonnes (no change from 2015)
Polystyrene	0.2 tonnes (no change from 2015)
Scrap metal	42 tonnes (38% decrease from 2015)
Kitchen scraps	21 tonnes (19% decrease from 2015)
Oil/filters/containers	6 drums (no change from 2015)
<b>Total recyclables</b>	<b>89 tonnes (29% decrease from 2015)</b>

## Financial Report

Please refer to the attached *Statement of Operations* for Port Renfrew Street Lighting, Water, Snuggery Cove Water, Sewer and Refuse Disposal services. Revenue includes parcel taxes (Transfers from Government), fixed user fees (User Charges), interest on savings (Interest Earnings), 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.

**Port Renfrew Street Lighting Service**

2016 User Fee charges were \$40.17 per Single Family Equivalent (SFE) and 2016 Parcel Tax charges were \$42.28 per Taxable Parcel.

**Port Renfrew Water**

2016 User Fee charges were \$197.71 per Single Family Equivalent (SFE) and 2016 Parcel Tax charges were \$280.35 per Taxable Parcel.

The balances in the Port Renfrew Water service capital funds and reserve accounts at December 31, 2016 were:

Description	Balance at end of 2016
Capital Reserve Fund (1026 101370)	\$187,251
Funds remaining to spend on projects in progress (WSV185102)	\$8,121

**Port Renfrew Sewer**

2016 User Fee charges were \$430.04 per Single Family Equivalent (SFE) and 2016 Parcel Tax charges were \$481.94 per Taxable Parcel.

The balance in the Port Renfrew Sewer service capital reserve account at December 31, 2016 were:

Description	Balance at end of 2016
Capital Reserve Fund (1044 101388)	\$43,791

**Port Renfrew Refuse Disposal**

The balances in the Port Renfrew Refuse Disposal service capital funds and reserve accounts at December 31, 2016 were:

Description	Balance at end of 2016
Capital Reserve Fund (1021 101365)	\$33,806
Funds remaining to spend on projects (GSV185089)	\$626

Submitted by:	Matt McCrank, M.Sc., P.Eng., Senior Manager, Infrastructure Operations Ian Jesney, P.Eng., Senior Manager, Infrastructure Engineering Glenn Harris, Ph.D., R.P.Bio., Senior Manager, Environmental Protection Amber Donaldson, MA, CPA, CMA, A/ Senior Manager, Financial Services
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Making a difference...together

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## CAPITAL REGIONAL DISTRICT

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### PORT RENFREW WATER Statement of Operations (Unaudited) For the Year Ended December 31, 2016

	2016	2015
<b>Revenue</b>		
Transfers from government	52,740	51,960
User Charges	53,543	56,931
Water Sales	500	169
Fees and Charges		
Other revenue from own sources:		
Interest earnings	267	-
Other revenue	92	495
<b>Total revenue</b>	<u>107,142</u>	<u>109,555</u>
<b>Expenses</b>		
General government services	5,080	5,080
CRD Labour and Operating costs	54,173	57,025
Debt Servicing Costs		
Other expenses	11,400	24,017
<b>Total expenses</b>	<u>70,653</u>	<u>86,121</u>
<b>Net revenue (expenses)</b>	36,489	23,434
Transfers to own funds:		
Capital Reserve Fund	43,609	25,520
<b>Annual surplus (deficit)</b>	(7,120)	(2,086)
Accumulated surplus, beginning of year	7,120	9,206
<b>Accumulated surplus, end of year</b>	<u>\$ -</u>	<u>7,120</u>

## CAPITAL REGIONAL DISTRICT

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**Port Renfrew WATER**  
**Statement of Reserve Balances (Unaudited)**  
**For the Year Ended December 31, 2016**

	<b>Capital Reserve</b>	
	<b>2016</b>	<b>2015</b>
<b>Beginning Balance</b>	126,883	104,359
Transfer from Operating Budget	43,609	25,520
Community Works Funds	-	
Transfers from completed capital projects	14,752	1,301
Interest Income	2,006	1,703
Transfer to Capital Projects		(6,000)
<b>Ending Balance</b>	<u>187,250</u>	<u>126,883</u>

## CAPITAL REGIONAL DISTRICT

### Port Renfrew Sewer Statement of Operations (Unaudited) For the Year Ended December 31, 2016

	2016	2015
<b>Revenue</b>		
Transfers from government	40,295	39,945
User Charges	41,146	40,474
Recovery Cost	-	8,656
Other revenue from own sources:		
Interest earnings	146	128
Other revenue	45	347
Total revenue	81,632	89,549
<b>Expenses</b>		
General government services	2,710	2,830
Contract for Services	-	2,375
CRD Labour and Operating costs	58,253	57,718
Debt Servicing Costs		
Other expenses	13,512	20,098
Total expenses	74,475	83,021
<b>Net revenue (expenses)</b>	7,157	6,529
Transfers to own funds:		
Capital Reserve Fund	11,836	5,680
<b>Annual surplus (deficit)</b>	(4,679)	849
Accumulated surplus, beginning of year	12,339	11,490
<b>Accumulated surplus, end of year</b>	\$ 7,660	12,339

## CAPITAL REGIONAL DISTRICT

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**Port Renfrew SEWER  
Statement of Reserve Balances (Unaudited)  
For the Year Ended December 31, 2016**

	<b>Capital Reserve</b>	
	<b>2016</b>	<b>2015</b>
<b>Beginning Balance</b>	6,897	14,661
Transfer from Operating Budget Community Works Funds	11,836	5,680
Transfers from completed capital projects	24,859	
Interest Income	199	56
Transfer to Capital Projects		(13,500)
<b>Ending Balance</b>	<u>43,791</u>	<u>6,897</u>