

November 2019

# Sakinaw Ridge Wastewater Local Service Asset Management Plan





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## SAKINAW RIDGE WASTEWATER LOCAL SERVICE ASSET MANAGEMENT PLAN

### Version Log

This document was carefully prepared so that it can be maintained as a living document; a document that is continually edited and updated. Through the various edits and updates, this document may evolve and be expanded as needed. This may be as a result of infrastructure replacement or could be due to changes in regulatory requirements, technology, staffing, or environmental conditions. Regardless of the reason, updates to this asset management plan will be key to the ongoing operation of the Sakinaw Ridge wastewater local service.

Version	Revised By	Date	Description
1	D. Joseph	November 28, 2019	Final report for Board of Directors approval

### Acknowledgements

Completion of this Asset Management Plan would not have been possible without contributions and support from the following staff:

Darren Joseph	Asset Management Coordinator	Corporate Services
Brad Wing	Financial Analyst	Corporate Services
Tina Perreault	General Manager, Corporate Services	Corporate Services
Cheryl Trent	GIS Administrator	Corporate Services
Emilia Walton	GIS Technician	Corporate Services
Shane Walkey	Manager, Utility Services	Infrastructure Services
Bobby Rebner	Operations Support Technician	Infrastructure Services
Codi Abbott	Utility Operations Superintendent	Infrastructure Services
Ashley Gray	Utility Technician	Infrastructure Services

# SAKINAW RIDGE WASTEWATER LOCAL SERVICE ASSET MANAGEMENT PLAN

## 1. Local Service Information



Figure 1 – Map of Wastewater Local Service Area and Infrastructure

- Address: 4300 Milne Road
- Original Construction: 2008
- Taken over by Sunshine Coast Regional District (SCRD): 2014
- Establishment of Local Service: 2017
- Major Upgrades: None to date
- Treatment System Owner: SCRD
- Number of Fronting Parcels: 29 Residential (to a maximum of 40 upon future subdivision)
- Number of Users: 8
- Treatment Process: Whitewater packaged treatment plant
- Treatment Permit #: RE-18368
- Permitted Discharge Amount: 54.5 m<sup>3</sup>/day
- Regulatory Authority: Municipal Wastewater Regulation (MWR)
- Effluent Receiving: Ground
- EOCP Classification: Unclassified
- Statutory Right of Ways: Not required

## SAKINAW RIDGE WASTEWATER LOCAL SERVICE ASSET MANAGEMENT PLAN

### 1.1. Development Details

The Sakinaw Ridge wastewater local service area is located in the Egmont / Pender Harbour Electoral Area (Area A) of the SCRD. The treatment and disposal systems are located on separate properties.

The community wastewater systems were constructed in 2008 to assist with the development of new single-family dwellings in the neighbourhood. The ground conditions in this area are very rocky and were identified as having insufficient pervious soil material in their yards for constructing an onsite drainfield. The systems were managed by the developer until 2017 when the SCRD began overseeing the service.

### 1.2. Established Bylaws

There have been various bylaws adopted by the SCRD Board of Directors that are relevant to the Sakinaw Ridge wastewater local service, as listed in Table 1.

Sakinaw Ridge does not currently have bylaws that establish an operating and a capital reserve fund. As discussed in Section 1 of this plan, user fees collected that are not required in the current year will be invested in a reserve fund for future, non-annual maintenance. Meanwhile, parcel taxes will be collected for capital renewal and replacement.

*Table 1 – Established Bylaws Pertaining to the Wastewater Local Service*

Bylaw No.	Bylaw Name	Purpose
1087	Sakinaw Ridge Community Sewage Treatment System Service (2017)	Established a service area for the Sakinaw Ridge Community Sewage Treatment System.
714.1	Sakinaw Ridge Sewage Treatment Facilities Fees and Charges (2019)	Provide for the imposition of a charge against the owners for the use and operation of the sewage treatment facility.

## 2. Description of Assets

The following sections outline the current state of the wastewater systems by providing answers to the following questions:

- What do we own?
- Where is it?
- What is its condition?

- What is its useful life?
- What is its value?

## **2.1. Treatment and Disposal Systems**

Primary treatment of the influent takes place in individual household septic tanks located on the residents' properties. Each property's grey water is pumped to a common force main and terminates at the community wastewater treatment plant.

Secondary treatment of the wastewater takes place in an aboveground cast-in-place concrete tank with a series of divider walls forming individual treatment sections within. The top of the tank is a concrete with built-in access lids.

Wastewater enters the septic tanks where any remaining solids settle. The treated effluent is collected in a large collection tank and is pumped to the recirculating gravel filter. Effluent from the gravel filter flows to a diversion tank prior to discharging to the drainfield.

The final pumps provide treated effluent to be sent to a settling tank on a separate property and can then be diverted to four fields located throughout the parcel. The fields provide effluent disposal through a combined 1,126 m of perforated drainage pipe.

## **2.2. Collection System**

The collection system has approximately 3150 m of 75 mm diameter, polyvinyl chloride (PVC) pressure mains, and twelve manholes. The infrastructure depth has not been recorded at this time.

## **2.3. Asset Accessibility**

There are no accessibility issues with the infrastructure at Sakinaw Ridge.

## **2.4. Asset Condition**

Wastewater treatment system condition was determined by staff based on several factors.

- Previous or immanent failure of the system;
- Frequency of system repairs;

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- Age of system; and
- Ability to regularly meet effluent quality regulations.

Based on these factors each system in the local service area was assigned a condition rating from excellent to poor. An excellent condition is assigned to systems in near new condition, good to systems with few minor defects, fair to systems with moderate defects or signs of aging, and poor to systems that cannot currently function as designed, or will soon cease functioning without repair, due to flow volumes, defects, or aging.

The treatment system is operating within the design parameters and is still in excellent condition. The disposal and collection systems are in good condition. There have been no performance issues noted for any of these systems.

### 2.5. Asset Replacement Value

It is expected that the treatment process and drainfield configuration that were installed 11 years ago will still meet regulatory requirements once they are due for replacement.

Replacement value for the collection system was estimated based on individual component replacement values.

*Table 2 – Asset Replacement Value Summary*

Asset Type	Replacement Cost (2018 \$)	Year Installed	Estimated Useful Life	Remaining Useful Life
Treatment System	\$ 672,791	2008	50	39
Drainfield	\$ 352,722	2008	40	29
Collection System	\$ 2,662,390	2008	85	74

## 3. Operations and Maintenance (O&M) Plan

Operations and maintenance (O&M) are the activities that ensure the wastewater systems are able to continue to function as designed throughout their EUL. These activities include routine inspections and readings, unforeseen repairs, effluent sampling, and ongoing condition assessments. User fees and parcel taxes are collected annually to fund these activities.



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As discussed in the Wastewater Service Review, the current fees and taxes are combined and can be used to fund the operational expenditures for the year. The recommendation in the Wastewater Service Review is for user fees to provide sufficient revenue for operational expenditures and for parcel taxes to be invested in capital renewal and replacement.

### 3.1. Current O&M Fees

The users of the Sakinaw Ridge wastewater local service are charged user fees of \$718.75 per year (including a 25% increase in user fees in 2019) and those properties within the service area boundary as outlined in Bylaw No. 1087 are charged \$418.20 in parcel tax per year (including a 2% parcel tax increase in 2019).

### 3.2. Current O&M Budget

The budgeted and actual expenditures of the Sakinaw Ridge wastewater local service for 2018 are shown in Table 3. The breakdown between expenditure related to the collection system and the treatment and disposal systems has not been recorded. As there have been no recent issues identified with the collection system, all expenditures are assumed to have been allocated to the treatment and disposal systems.

*Table 3 – Budgeted and Actual Operations and Maintenance Expenditures*

Expenditures	2015	2016	2017	2018	Average
Budget	N/A	N/A	N/A	\$ 16,490.00	N/A
Actual	N/A	N/A	N/A	\$ 15,050.87	N/A
Variance	N/A	N/A	N/A	\$ 1,439.13	N/A

The majority of the actual expenditure (45%) was to pay for staffing expenses of operational and administrative staff, while other significant expenditures include contracted services (38%) and B.C. Hydro utility payment (8%).

### **3.3. Potential O&M Budget**

The potential O&M budget was created based on an optimal level of service for the systems at Sakinaw Ridge local service area. Similar to the existing O&M budget, staff wages account for the majority of the potential annual O&M budget for Sakinaw Ridge. The required semi-weekly, weekly, monthly, quarterly, and annual tasks are primarily completed by a Utility Technician.

Significant expenses in the potential operating budget include:

- Staffing expenses, consisting of:
  - O&M staffing requirement;
  - Administration of the wastewater system by Utilities Services staff;
  - SCRD Administration Services contribution;
- B.C. Hydro utility charges; and
- Proportioned share of service vehicles, tools, and miscellaneous expenses.

With the inclusion of all ancillary charges, the potential operating budget for Sakinaw Ridge wastewater local service is \$30,656.00. The potential user fee for the eight users in this local service area is \$3,832.00, a 433% increase from 2019 rates. This increase is primarily attributed to the separation of property tax revenue from the operating budget and improving the level of service delivered to this local service area.

The particularly high user fees is a result of the low number of users in this local service area. Only 28% of the eligible parcels currently have established homes to charge users fees to. The proposed user fees for this service area with fully developed parcels would be \$1,057.00.

## **4. Capital Plan**

Capital expenditure is required for the periodic renewal or replacement of wastewater systems or system components. A capital plan considers many of the topics already covered in this plan including asset replacement values and EULs, asset condition, and following a well-developed O&M plan.

The SCRD does not have a long-term capital funding plan in place for the wastewater infrastructure at Sakinaw Ridge.

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### 4.1. Reserve Balances

As of the end of 2018, there were no funds contributed to operating reserves or capital reserves.

### 4.2. Potential Capital Budget

Budget models considering four different time frames (10, 20, 50, and 80 year periods) were prepared for consideration, each with varying capital budgets and some with varying levels of infrastructure replacements. For each model, two plans were prepared: even annual contribution and 10% increase every five years.

Each model factors in funding the full cost of the infrastructure requiring replacement within the life of the model. Any debt incurred during the timeframe of the model is paid off in full with interest and the model terminates with a reserve balance equal to 10% of the projected value of the infrastructure in the last year of the model.

The highlighted budget plans represent the shortest term in which all infrastructure (i.e. the treatment, disposal, and collection systems) will need to be replaced.

*Table 4 – Potential Capital Budget Options Based on Model and Payment Method*

Capital Budget	Model	Infrastructure Replaced	Payment Method	Total Revenue	Parcel Tax (Year 1)
<b>Plan 1</b>	80-Year	Treatment System (1) Drainfield (2) Collection System (1)	Even Annual Contribution	\$ 36,346,400	\$ 15,667
<b>Plan 2</b>	80-Year	Treatment System (1) Drainfield (2) Collection System (1)	10% Increase Every Five Years	\$ 52,022,854	\$ 9,980
<b>Plan 3</b>	50-Year	Treatment System (1) Drainfield (1) Collection System (0)	Even Annual Contribution	\$ 5,731,000	\$ 3,952
<b>Plan 4</b>	50-Year	Treatment System (1) Drainfield (1) Collection System (0)	10% Increase Every Five Years	\$ 6,625,984	\$ 2,867

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<b>Capital Budget</b>	<b>Model</b>	<b>Infrastructure Replaced</b>	<b>Payment Method</b>	<b>Total Revenue</b>	<b>Parcel Tax (Year 1)</b>
<b>Plan 5</b>	20-Year	Treatment System (0) Drainfield (0) Collection System (0)	Even Annual Contribution	\$ 954,000	\$ 1,645
<b>Plan 6</b>	20-Year	Treatment System (0) Drainfield (0) Collection System (0)	10% Increase Every Five Years	\$ 975,538	\$ 1,450
<b>Plan 7</b>	10-Year	Treatment System (0) Drainfield (0) Collection System (0)	Even Annual Contribution	\$ 621,200	\$ 2,142
<b>Plan 8</b>	10-Year	Treatment System (0) Drainfield (0) Collection System (0)	10% Increase Every Five Years	\$ 624,015	\$ 2,049

In addition to the replacement of the wastewater systems, other items that appear in the capital budget include:

- Replacement of the drainfield pumps; and
- Proportioned short-term debt payments for the purchase and replacement of two service vehicles.

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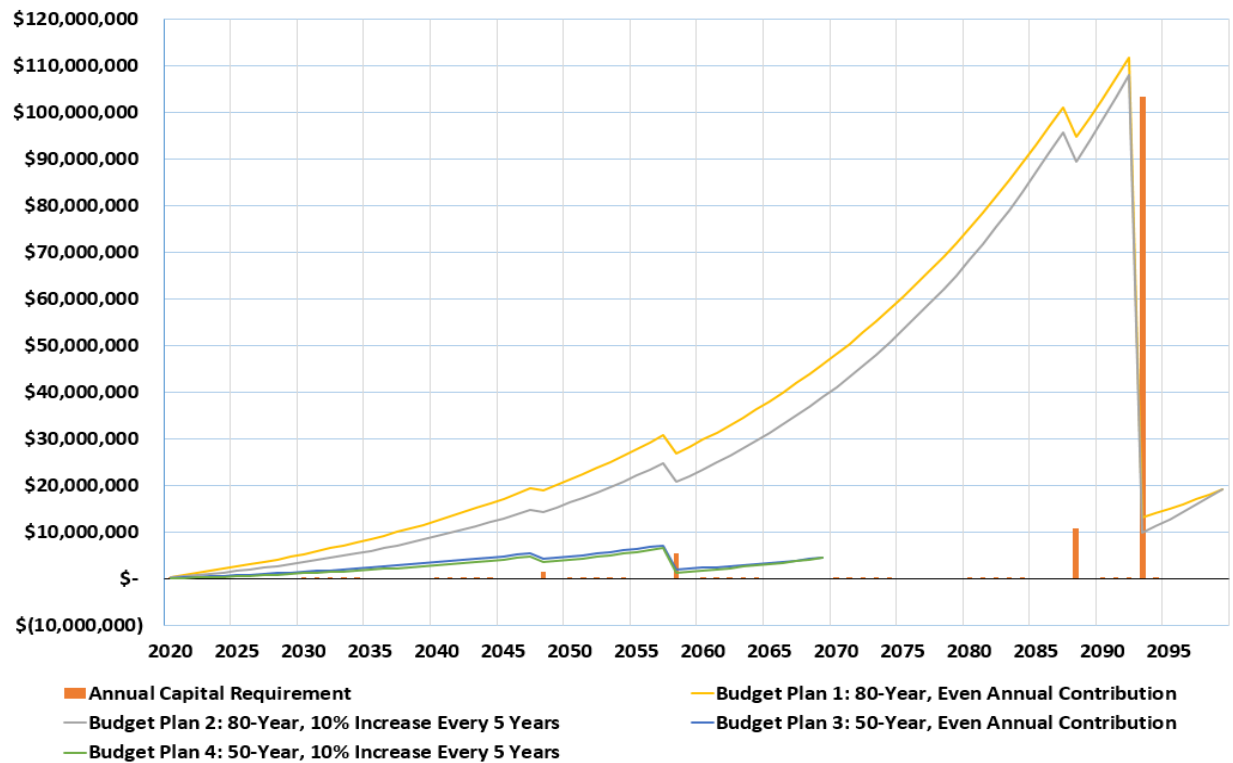


Figure 2 – Wastewater Local Service 50-Year and 80-Year Capital Plans

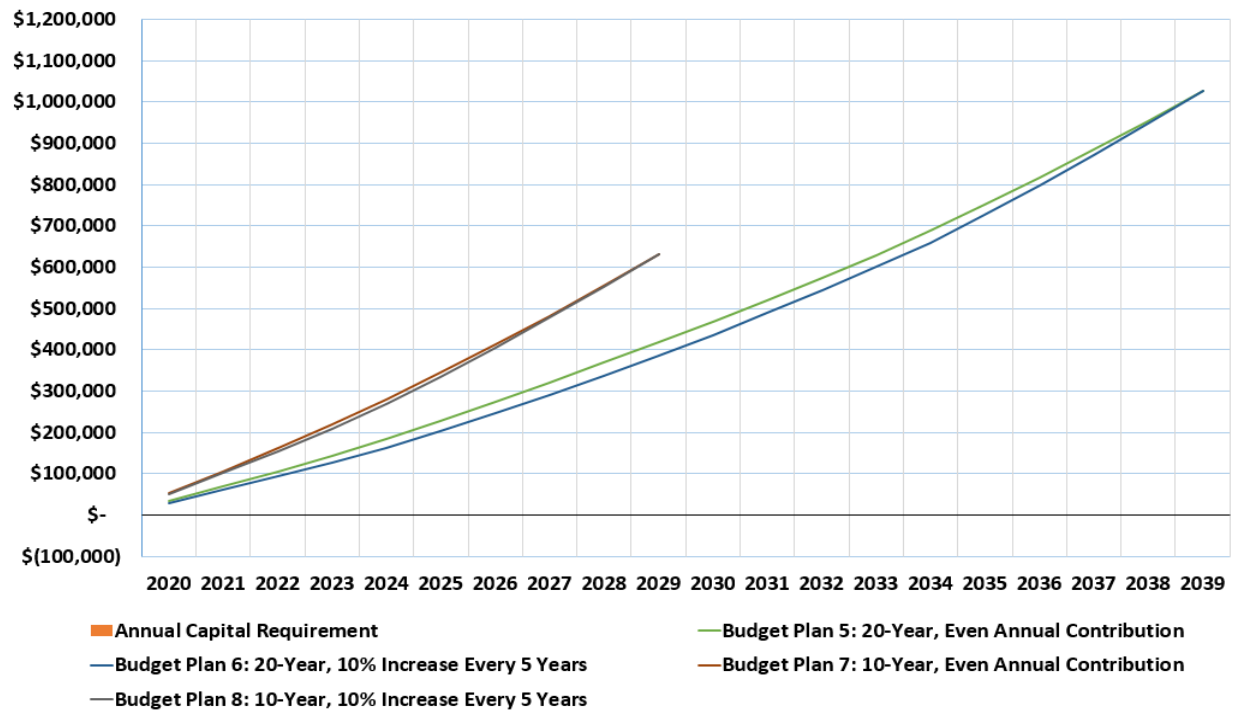


Figure 3 – Wastewater Local Service 10-Year and 20-Year Capital Plans

## **5. Additional Local Service Improvement Actions**

Additional operational work is required in the Sakinaw Ridge wastewater local service area that falls outside of the typical operational and maintenance plan. These items have been listed due to the potential impact that they may have on the users and fronting properties of the local service.

*Table 5 – Local Service Improvement Actions*

<b>Action Item</b>	<b>Target Year</b>	<b>Cost Estimate</b>	<b>Result</b>
<b>Create capital and operating reserves bylaws.</b>	2020	Staff time only.	To be determined.