

1 Wastewater



Efficient and effective management of the region's wastewater

01 Strategy

STRATEGIES & PLANS

- › [Core Area Liquid Waste Management Plan](#)
- › [Saanich Peninsula Liquid Waste Management Plan](#)

CORPORATE PLAN GOALS

- 1a Optimize Core Area wastewater treatment system
- 1b Management of wastewater & treatment residuals

02 Contacts

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03 Operating Context

ACHIEVEMENTS IN 2023

1. Completed Bowker Sewer Rehabilitation Phase 1. The aging Northeast Trunk - Bowker sanitary sewer system is made from large diameter cast-in-place brick and non-reinforced concrete pipes. Based on results of video inspection about 2,000 metres of sanitary sewer pipes from Foul Bay Road towards Currie Pump Station were deteriorating and in need of repair and rehabilitation. The pipes were lined from the inside using a trenchless technology method, cured-in-place-pipe, to minimize above ground disturbance.
2. Started Phase 1 of the Regional Wastewater Development Cost Charge Program. The need for such a program was identified in the CRD 2023-2026 Corporate Plan and will be used to fund future growth-related regional wastewater system improvements.
3. Various McLoughlin Wastewater Treatment Plant Improvement Projects. These projects refine and optimize operations at the McLoughlin Wastewater Treatment Plant to reduce cost, improve efficiency and odour controls.

FACTORS THAT WILL AFFECT OUR OPERATIONS IN 2024 AND BEYOND

- **Core Area Wastewater System:**
- Monitoring programs for new wastewater infrastructure in the Core Area continue to be implemented and updated. Additional samples will need to be collected and analyzed on an ongoing basis to support the ongoing operational commissioning and refinement, and monitoring programs.
- Work continues to optimize the operation and maintenance of the new infrastructure. Activities include refining staffing requirements, infrastructure performance, and operations and maintenance functions to improve effluent quality and reduce community impacts related to the operation.
- The CRD continues to implement its short-term biosolids strategy, while also advancing long-term planning, options analysis and pilot testing.
- As the CRD gains more operating experience and implements the outcomes of ongoing optimization works across the Core Area Wastewater System, the annual operating budget will continue to be monitored closely and refined annually.
- **Operational cost increases:** the costs of essential wastewater system operating supplies, such as coagulant chemicals, have been increasing 30-40% year over year which is impacting the cost of service delivery. This trend has been seen across North America.
- **Asset Management:** the ongoing trend in reviewing, updating and completing asset management plans and the continuous upgrading, replacement and growth of assets in the water and wastewater systems rely on having an up-to-date asset registry, as well as an asset onboarding process. Both the Scottish Water Review in 2018 and the EMA Readiness Assessment of 2020 highlighted the need for a reliable asset registry for Water and Wastewater.
 - The risk of assets not being maintained, replaced in a timely manner and failing could impact the CRD's ability to provide the expected water and wastewater level of service and could even result in environmental and public health and safety risks.

- The asset registry is an important step in ensuring that assets are captured in the Maintenance Management System and Preventative Maintenance Plans are developed. This information is also critical with regards to capital and financial planning for the utility services.
- **Aging Infrastructure:** infrastructure is of various ages and in several cases large scale infrastructure renewal will be required to maintain a state of good repair.
- Facility Management's role in supporting maintenance of superstructures in wastewater is being defined.

04 Services

The services listed below rely on the support of several corporate and support divisions to operate effectively on a daily basis. More information about these services is available in the Corporate Services and Government Relations Community Need Summaries.

Wastewater systems and small wastewater systems

Services include wastewater conveyance and tertiary treatment for Core Area, and conveyance and secondary treatment for Saanich Peninsula, and the small wastewater systems in the Electoral Areas.

SERVICE BUDGET REFERENCES¹

- › 3.717 Core Area Wastewater Operations
- › 3.798C Core Area Wastewater Capital
- › 3.718 Saanich Peninsula Wastewater
- › 3.720 Saanich Peninsula Liquid Waste Management Planning Budget
- › 3.750 Core Area Liquid Waste Management Planning Budget

1. WASTEWATER SYSTEM OPERATIONS

Description

Wastewater treatment, collection and transmission system operation and monitoring. System and facility maintenance, consumables management and preventative maintenance. Respond to wastewater system emergencies, service interruptions and wastewater overflows.

What you can expect from us

- ▶ 24/7 wastewater treatment
- ▶ Conveyance system operation
- ▶ System monitoring
- ▶ Customer service and odour monitoring/investigation
- ▶ System and facility maintenance
- ▶ Consumables management
- ▶ 24/7 operator response to system emergencies, service interruptions, wastewater overflows and public and environmental health protection

Staffing Complement

Wastewater Infrastructure Operations: **64 FTE (including 5 Managers and 2 Administrative Support)**

¹ Service budget(s) listed may fund other services

2. CAPITAL PROJECT DELIVERY

Description

Project design, procurement and delivery of projects planned each year, on time and budget. Installations, equipment replacement and capital projects support.

What you can expect from us

- ▶ Capital program for seven services
- ▶ Infrastructure renewal and upgrades
- ▶ Capital project support

Staffing Complement

Capital Projects: **8 FTE (including 1 Manager)**

3. INFRASTRUCTURE PLANNING

Description

Strategic asset management for all services/systems including modeling and capacity analysis, vulnerability assessment, infrastructure renewal plans.

What you can expect from us

- ▶ Asset management plans
- ▶ Manage capital plans for seven wastewater services
- ▶ Proactive capital planning for all seven wastewater services with a 15-year outlook
- ▶ Ongoing condition assessment to inform the capital program and ensure wastewater systems assets remain in a state of good repair
- ▶ Incorporating growth and expansion demands into future plans

Staffing Complement

Wastewater Engineering and Planning: **5 FTE (including 1 Manager)**

4. PROCESS ENGINEERING SERVICES

Description

Support of Infrastructure Operations through engineering services such as process, civil, electrical and mechanical investigation and optimization.

What you can expect from us

- ▶ Engineering support of utility operations for the seven wastewater services in the areas of process optimization and troubleshooting (including odour treatment systems and energy efficiency), management of change, and root cause failure analysis
- ▶ Long-range planning and implementation of treatment system improvements
- ▶ Feasibility studies, including cost estimates, technical reports and recommendations,

- ▶ Detailed technical research and analysis to support plant operations

Staffing Complement

Process Engineering: 2 FTE (including 1 Manager)

Environmental Protection

Regulatory and non-regulatory services and a support role across the organization that focuses on contaminant reduction, monitoring and assessment associated with liquid waste treatment.

SERVICE BUDGET REFERENCES²

- | | |
|---|--|
| ▶ 1.536 Stormwater Quality Management - Core Area | ▶ 3.700 Septage Disposal Agreement |
| ▶ 1.537 Stormwater Quality Management - Peninsula | ▶ 3.709 Inflow & Infiltration Enhancement Program |
| ▶ 1.538 Source - Stormwater Quality - Saanich Peninsula | ▶ 3.750 Liquid Waste Management Plan- Public Involvement Process |
| ▶ 1.577 Environmental Operations | ▶ 3.752 Stage 3 Harbour Studies |
| | ▶ 3.756 Harbours Environmental Action |

5. REGIONAL SOURCE CONTROL

Description

Administration, monitoring and reporting of compliance with regional bylaw.

What you can expect from us

- ▶ Inspect, monitor and enforcement for businesses and institutions connected to sanitary sewer
- ▶ Promote contaminant reduction associated with sanitary and stormwater systems

Staffing Complement

Environmental Protection: 8.25 FTE + leadership support

6. CORE AREA AND SAANICH PENINSULA WASTEWATER & MARINE ENVIRONMENTAL PROGRAM

Description

Oversight for wastewater monitoring and assessment and reporting to meet regulatory requirements.

What you can expect from us

- ▶ Marine outfall monitoring, assessment and reporting services to demonstrate compliance with federal and provincial legislation
- ▶ Update of Liquid Waste Management Plans

² Service budget(s) listed may fund other services

Staffing Complement

Environmental Protection: 3.5 FTE + leadership support

7. RESIDUALS TREATMENT FACILITY

Description

Administration of the Project Agreement for operation of the RTF and biosolids beneficial use strategy.

What you can expect from us

- ▶ Monitoring and compliance reporting.

Staffing Complement

Environmental Protection: 1.2 FTE + leadership support

8. ON-SITE WASTEWATER MANAGEMENT

Description

Regulatory oversight for onsite wastewater systems and education and outreach services across the region.

What you can expect from us

- ▶ Promote and monitor compliance with regional bylaw.

Staffing Complement

Environmental Protection: 0.7 FTE + leadership support

9. SEPTAGE SERVICE

Description

Administration, monitoring and reporting of regional septage service.

What you can expect from us

- ▶ Negotiate and manage one septage disposal contract servicing the capital region.

Staffing Complement

Environmental Protection: 0.1 FTE + leadership support

10. WATERSHED MANAGEMENT PROGRAM

Description

Promote environmental stewardship associated with sanitary and stormwater systems, contaminants and flows.

What you can expect from us

- ▶ Promote public awareness and stewardship initiatives.
- ▶ Public education and engagement in the region to promote sustainable behavior through campaigns, initiatives and services.

Staffing Complement

Environmental Protection: **1.5 FTE**

05 Initiatives

Below are the initiatives listed in the [Capital Regional District 2023-2026 Corporate Plan](#) and the related initiative business cases (IBCs), including financial and staffing impacts, proposed for 2024. The financial impacts reflect full program costs, including cost of staffing.

Initiative	Implementation year(s)	Impacts in 2024	
1a-1 Refine and optimize operations at the McLoughlin Wastewater Treatment Plant to reduce cost, improve efficiency and odour controls	2023-2024	\$111K requisition	1 Term Extended
▶ NEW IBC 1a-1.1 Lab Technician (Core Area)	2024-2026	\$111K requisition	1 Term Extended
1a-2 Support other infrastructure projects that form part of the Core Area wastewater treatment system, including the Residuals Treatment Facility and conveyance system	2023		
▶ NEW IBC 1a-2.1 Environmental Monitoring Program – Environmental Technician Odour	2024-2026	\$111K requisition	1 Term Extended
▶ NEW IBC 1a-2.2 Facilities Maintenance Worker	2024-ongoing	\$106K other	1 Term Converted
1b-1 Implement a development cost charge program for the Core Area wastewater service	2024	-	-
1b-2 Deliver master plans, capital plans and operations for wastewater treatment and conveyance to service current and future population, and address infrastructure deficiencies	Ongoing	-	-
1b-3 Update the Liquid Waste Management Plan for Saanich Peninsula and Core Area	2024-2025	-	-
1b-4 Develop and implement a long-term Biosolids Management Plan	2022-2024		existing
▶ NEW IBC 1b-4.1 Biosolids Coordinator	2024-2027	\$111K requisition	1 Term Extended

06 Performance

GOAL 1A: OPTIMIZE CORE AREA WASTEWATER TREATMENT SYSTEM

GOAL 1B: MANAGEMENT OF WASTEWATER & TREATMENT RESIDUALS

Targets & Benchmarks

Indicators benchmarked in 2022/2023 include:

- Energy use per megalitre of wastewater treated: n/a
- Utilization of gas generated at the Residuals Treatment Facility: n/a

Measuring Progress

Performance Measure(s)	Service	Type	2022 Actual	2023 Forecast	2024 Target
1. Volume of biosolids beneficially used	All Wastewater Services	Quantity	600	1,600	3,600
2. Wastewater effluent quality non-compliance events with provincial and federal regulatory requirements	Core Area Wastewater	Quantity	10	5	0
	Saanich Peninsula Wastewater	Quantity	0	0	0
	Salt Spring Island Liquid Waste	Quantity	6	8	0
	Local Services	Quantity	18	12	10
3. Number of wastewater overflows or flow exceedances	Core Area Wastewater	Quantity	36	20	0
	Saanich Peninsula Wastewater	Quantity	0	0	0
	Salt Spring Island Liquid Waste	Quantity	2	2	0
	Local Services	Quantity	17	15	15
4. Total volume of wastewater collected and treated²	Core Area Wastewater	Quantity	33,851,491	34,000,000	34,500,000
	Saanich Peninsula Wastewater	Quantity	3,588,904	3,500,000	3,700,000
	Salt Spring Island Liquid Waste	Quantity	178,734	180,000	182,000
	Local Services	Quantity	301,043	300,000	305,000
5. Operating cost per megaliter of wastewater collected and treated³	Core Area Wastewater	Quantity	686	807	811
	Saanich Peninsula Wastewater	Quantity	1,014	1,099	1,011
	Salt Spring Island Liquid Waste	Quantity	4,431	4,538	4,527
	Local Services	Quantity	5,300	5,579	5,404
6. Number of odour complaints related to operation	Core Area Wastewater	Quantity	98	95	90
	Saanich Peninsula Wastewater	Quantity	0	1	1
	Salt Spring Island Liquid Waste	Quantity	0	0	0
	Local Services	Quantity	2	2	2
7. Delivery of annual capital program⁴	Core Area Wastewater	Quantity	6,500,000	24,000,000	32,500,000
	Saanich Peninsula Wastewater	Quantity	2,200,000	3,000,000	3,200,000
	Local Services	Quantity	802,000	7,000,000	4,000,000
8. Preventative maintenance completion⁵	Core Area Wastewater	Quantity	70%	82%	85%
	Saanich Peninsula Wastewater	Quantity	87%	94%	95%
	Salt Spring Island Liquid Waste	Quantity	84%	88%	91%
	Local Services	Quantity	89%	95%	95%

² Volume is expressed in cubic meters

³ Expressed in dollars

⁴ Expressed in dollars spent

⁵ Expressed as percentage of planned maintenance work completed

07 Business Model

PARTICIPANTS

Core Area Municipalities (Colwood, Esquimalt, Langford, Oak Bay, Saanich, Victoria, View Royal) and Songhees and Esquimalt First Nations

Saanich Peninsula Municipalities (Central Saanich, North Saanich, Sidney) and Saanich Peninsula First Nations

Local Wastewater Service Areas in the Electoral Areas (Magic Lake, Port Renfrew, Ganges, Maliview, SSI Liquid Waste)

FUNDING SOURCES

Requisitions and user charges (Local Wastewater Service Areas)

GOVERNANCE

[Core Area Liquid Waste Management Committee](#)

[Saanich Peninsula Wastewater Commission](#)

[Electoral Areas Committee](#)

[Local Wastewater Service Area Committees and Commissions](#)