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

Alicia Fraser, General Manager, Integrated Water Services	@ email	T. 250.360.3061
Glenn Harris, Senior Manager, Environmental Protection	@ email	T. 250.360.3090
Qais Al-Rawi, Senior Manager, Corporate Asset and Maintenance Management	@ email	T. 250.474.9655
Jason Dales, Senior Manager, Wastewater Infrastructure Operations	@ email	T. 250.940.7402
Joseph Marr, Senior Manager, Infrastructure Engineering	@ email	T. 250.474.9656

03 Operating Context

ACHIEVEMENTS IN 2024

Infrastructure Engineering:

1. 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.
2. Marigold, Currie & Lang Cove Pump Stations: Detailed design complete and a construction contract was awarded for Electrical and Instrumentation improvements to 3 pump stations in the Core Area Wastewater system. Long lead equipment is on order. Construction is expected to continue into 2025.
3. East Coast Interceptor and Bowker Sewer Rehabilitation Phase 2: The aging East Coast Interceptor and Northeast Trunk - Bowker sanitary sewer system is made from large diameter cast-in-place brick and concrete pipes. Construction for the cured-in-place-pipe (CIPP) rehabilitation of a second phase of work, consisting of more than 2 km of pipe rehabilitation in the City of Victoria and District of Oak Bay, is scheduled to be completed by the end of 2024.
4. Completed the detailed design of the odour control systems at Saanich Peninsula Wastewater Treatment Plant. Upgrades are required in numerous spaces in order to meet health and safety requirements and prolong the life of existing assets.

Environmental Protection

1. Completed all monitoring requirements for wastewater, stormwater and aquatic receiving environment in accordance with commitments in the Core Area and Saanich Peninsula Liquid Waste Management Plans.
2. Reconvened the Core Area Technical and Community Advisory Committee to review and make recommendations regarding regional and municipal commitments for management of inflow and infiltration and biosolids.
3. Prepared and submitted a Long-term Biosolids Management Plan in accordance with provincial direction.

FACTORS THAT WILL AFFECT OUR OPERATIONS IN 2025 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.

SERVICE BUDGET REFERENCES[1]

- 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 Mangers and 2 Administrative Support)

[1] Service budget(s) listed may fund other services

2. INFRASTRUCTURE ENGINEERING

Description

Overseeing the engineering, planning and capital project delivery related to wastewater infrastructure. Strategic asset management for all wastewater systems including modeling and capacity analysis, vulnerability assessment and infrastructure renewal plans. Project design, procurement and delivery of projects planned each year, on time and budget. Installations, equipment replacement and capital projects support, as well as support of Infrastructure Operations through engineering services such as process, civil, electrical and mechanical investigation and optimization.

What you can expect from us

- Asset management plans
- Manage capital program for two wastewater services
- Proactive capital planning for two wastewater services
- 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
- Infrastructure renewal and upgrades
- Capital project support
- Engineering support of utility operations for the 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

Wastewater Engineering and Planning 4 FTE (including 1 Manager)
Capital Projects: 8 FTE (including 1 Manager)
Process Engineering: 3 FTE (including 1 Manager)

Environmental Protection

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

SERVICE BUDGET REFERENCES[2]

- 1.536 Stormwater Quality Management - Core Area
- 1.537 Stormwater Quality Management - Peninsula
- 1.538 Source - Stormwater Quality - Saanich Peninsula
- 1.577 Environmental Operations
- 3.700 Septage Disposal Agreement
- 3.709 Inflow & Infiltration Enhancement Program
- 3.750 Liquid Waste Management Plan-Public Involvement Process
- 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

Staffing Complement

Environmental Protection: 3.5 FTE + leadership support

[2] Service budget(s) listed may fund other services

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 2025. The financial impacts reflect full program costs, including cost of staffing.

Initiative	Implementation year(s)
1a-1 Refine and optimize operations at the McLoughlin Wastewater Treatment Plant to reduce cost, improve efficiency and odour controls	2023–2024
▸ 1a-1.1 Lab Technician (Core Area)	2024-2026
1a-2 Support other infrastructure projects that form part of the Core Area wastewater treatment system, including the Residuals Treatment Facility and conveyance system	Ongoing
▸ 1a-2.1 Environmental Monitoring Program – Environmental Technician Odour	2024-2026
▸ 1a-2.2 Facilities Maintenance Worker	2024-ongoing
1b-1 Implement a development cost charge program for the Core Area wastewater service	2025-2026
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	2025-2026
1b-4 Develop and implement a long-term Biosolids Management Plan	2022-2024
▸ 1b-4.1 Biosolids Coordinator	2024-2027
▸ **NEW IBC** 1b-4.2 Innovative Projects Work Unit	2025-ongoing

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	2023 Actual	2024 Forecast	2025 Target
1. Volume of biosolids beneficially used	All Wastewater Services	Quantity	25%	70%	100%
2. Wastewater effluent quality non-compliance events with provincial and federal regulatory requirements	Core Area Wastewater	Quantity	5	5	3-5
	Saanich Peninsula Wastewater	Quantity	0	0	0
3. Number of wastewater overflows or flow exceedances	Core Area Wastewater	Quantity	13	10	12
	Saanich Peninsula Wastewater	Quantity	0	0	0
4. Total volume of wastewater collected and treated[2]	Core Area Wastewater	Quantity	30,500,000	34,500,000	35,500,000
	Saanich Peninsula Wastewater	Quantity	3,263,647	3,600,000	3,700,000
5. Operating cost per megaliter of wastewater collected and treated[3]	Core Area Wastewater	Quantity	866	813	875
	Saanich Peninsula Wastewater	Quantity	1,229	1,317	1382
6. Number of odour complaints related to operation	Core Area Wastewater	Quantity	151	65	
	Saanich Peninsula Wastewater	Quantity	1	1	0
7. Delivery of annual capital program[4]	Core Area Wastewater	Quantity	24,000,000	25,000,000	26,000,000
	Saanich Peninsula Wastewater	Quantity	3,000,000	1,000,000	4,000,000
8. Preventative maintenance completion[5]	Core Area Wastewater	Quantity	80%	84%	86%
	Saanich Peninsula Wastewater	Quantity	91%	93%	94%

[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

FUNDING SOURCES

Requisitions and user charges

GOVERNANCE

Core Area Liquid Waste Management Committee
Saanich Peninsula Wastewater Commission