

Wastewater

Strategy

Target Outcome

We envision efficient and effective management of the region's wastewater.

Strategic Context

Strategies

- [Core Area Liquid Waste Management Plan](#)
- Continue to optimize operation of McLoughlin Point Wastewater Treatment Plant (MPWWTP), the Core Area Conveyance System, and Residuals Treatment Facility (RTF), following completion of performance period.
- Transition of residual solids from other wastewater treatment facilities to the Residuals Treatment Facility.
- Continue to effectively operate and maintain the Saanich Peninsula Wastewater Treatment Plant and conveyance system.
- Continue to effectively operate and maintain five small wastewater systems in the Electoral Areas.

Trends, risks and issues

- Monitoring programs for new wastewater infrastructure in the Core Area continue to be implemented; ongoing commissioning and operational refinement requires additional samples to be collected and analyzed. Lab Services requires additional resources to support the wastewater operations at MPWWTP for 2023.
- Biosolids short-term implementation, and long-term planning, options analysis and pilot testing.
- Optimization of operation and maintenance of new infrastructure in the Core Area to refine staffing requirements, infrastructure performance, and operations and maintenance functions, to improve effluent quality and reduce community impacts related to the operation.
- Continue to operate and maintain the other wastewater infrastructure in the Core Area, Saanich Peninsula, and the Electoral Areas. This infrastructure is of various ages and in several cases large scale infrastructure renewal is required.
- Facility Management's role in supporting maintenance of superstructures in wastewater is being defined.
- The development of a Core Area Development Cost Charge Program is advancing.
- As the CRD gains more operating experience and implements outcomes of on-going optimization works across the Core Area Wastewater System, the annual operating budget will continue to be monitored closely and refined annually.

Community Need

2023 Summary

Services

Core Services Levels	
Service	Levels
Core Area, Saanich Peninsula Wastewater Systems and Small Wastewater Systems in the Electoral Areas 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.	
Wastewater System Operations Wastewater treatment collection and transmission system operation and monitoring. System and facility maintenance, consumables management and preventative maintenance.	<ul style="list-style-type: none"> Wastewater treatment. System operation, monitoring and maintenance. Consumables management. ↪ Service level adjusted, see initiatives 8a-1.7 & 8a-1.8
Emergency Response/System Failure Wastewater overflows and unplanned service interruptions.	<ul style="list-style-type: none"> Wastewater overflows and public and environmental health protection. Unplanned service interruptions.
Capital Project Delivery Project design, procurement and delivery of projects planned each year, on time and budget. Installations, equipment replacement and capital projects support.	<ul style="list-style-type: none"> Capital program for seven services. Infrastructure renewal and upgrades. Capital project support.
Infrastructure planning Strategic asset management for all services/systems including modeling and capacity analysis, vulnerability assessment, infrastructure renewal plans.	<ul style="list-style-type: none"> Asset management plans. Manage capital plans for seven wastewater services.
Engineering services Support of Infrastructure Operations through engineering services such as process, civil, electrical and mechanical troubleshooting.	<ul style="list-style-type: none"> Engineering support of utility operations for the seven wastewater services.
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.	
Regional Source Control Administration, monitoring, and reporting of compliance with regional bylaw.	<ul style="list-style-type: none"> Inspect, monitor and enforcement for businesses and institutions connected to sanitary sewer. Promote contaminant reduction associated with sanitary and stormwater systems.

Community Need

2023 Summary

Core Services Levels	
Service	Levels
<p>Core Area and Saanich Peninsula Wastewater & Marine Environmental Program Oversight for wastewater monitoring and assessment and reporting to meet regulatory requirements.</p>	<ul style="list-style-type: none"> • Marine outfall monitoring, assessment and reporting services to demonstrate compliance with federal and provincial legislation. → Service level adjusted, see initiative 8a-1.5 • Update of Liquid Waste Management Plans.
<p>Residuals Treatment Facility Administration of the Project Agreement for operation of the RTF and biosolids beneficial use strategy.</p>	<ul style="list-style-type: none"> • Monitoring and compliance reporting.
<p>On-site Wastewater Management Regulatory oversight for onsite wastewater systems and education and outreach services across the region.</p>	<ul style="list-style-type: none"> • Promote and monitor compliance with regional bylaw.
<p>Septage Service Administration, monitoring and reporting of regional septage service.</p>	<ul style="list-style-type: none"> • Negotiate and manage one septage disposal contract servicing the capital region.
<p>Watershed Management Program Promote environmental stewardship associated with sanitary and stormwater systems, contaminants and flows.</p>	<ul style="list-style-type: none"> • Promote public awareness and stewardship initiatives. • Public education and engagement in the region to promote sustainable behavior through campaigns, initiatives and services.
<p>Support Services The core services listed rely on the support of several corporate and support divisions to effectively operate on a daily basis. These services are reported on in the Accountability Community Need Summary.</p>	<ul style="list-style-type: none"> • Services include Human Resources & Corporate Safety, Corporate Communications, Asset Management, Financial Services, Information Technology & GIS, Information Services, Legislative Services, Facility Management, Fleet Management, Legal Services, Risk & Insurance and Real Estate Services.

Community Need

2023 Summary

Initiatives					
Ref	Initiative	Description	Year(s)	2023 impacts ¹	
8a-1.5	Lab Services CAWTP	Support for lab services during evaluation of longer-term CAWTP requirements.	2023	1.0 FTE Term extension	\$1.6K Allocation / other
8a-1.7	Wastewater Treatment Operators (Core Area)	New resources to support Core Area Wastewater Treatment Plant	2023 – ongoing	+2.0 FTE Ongoing	\$267K Allocation / other
8a-1.8	Manager Wastewater Conveyance (Core Area)	New resources to support Core Area Wastewater Conveyance Operations	2023 – ongoing	+1.0 FTE Ongoing	\$168K Allocation / other

Business Model

Funding
<p>Who contributes</p> <ul style="list-style-type: none"> 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). Support Services: varies per service. <p>Funding Sources</p> <ul style="list-style-type: none"> Requisitions and User Charges (Local Wastewater Service Areas)

Reporting Structure
<ul style="list-style-type: none"> Core Area Liquid Waste Management Committee Saanich Peninsula Wastewater Commission Electoral Areas Committee and Local Wastewater Service Area Committees and Commissions

¹ Budget impacts reflect full program costs, including cost of staffing

Community Need

2023 Summary

Appendix D



Performance				
Definition and Source	Service	2021 Actual	2022 Forecast	2023 Target
Metric 1 Wastewater effluent quality non-compliance events with provincial and federal regulatory requirements	<i>Core Area Wastewater</i>	14	6	0
	<i>Saanich Peninsula Wastewater</i>	1	0	0
	<i>Local Services</i>	15	9	2
Metric 2 Number of wastewater overflows or flow exceedances	<i>Core Area Wastewater</i>	51	14	0
	<i>Saanich Peninsula Wastewater</i>	2	0	0
	<i>Local Services</i>	77	16	40
Metric 3 Total volume of wastewater collected and treated (cubic meters)	<i>Core Area Wastewater</i>	35,938,688	36,000,000	36,500,000
	<i>Saanich Peninsula Wastewater</i>	3,676,551	3,700,000	3,775,000
	<i>Local Services</i>	333,886	334,000	336,000
Metric 4 Operating cost per megalitre of wastewater collected and treated (\$)	<i>Core Area Wastewater</i>	628	658	799
	<i>Saanich Peninsula Wastewater</i>	912	983	1,072
	<i>Local Services</i>	4,785	5,287	5,091
Metric 6 Volume (tonnes) of biosolids beneficially used	<i>All Wastewater Services</i>	771	2,250	3,150
Metric 7 Number of odour complaints related to operation	<i>Core Area Wastewater</i>	97	95	0
	<i>Saanich Peninsula Wastewater</i>	1	4	0
	<i>Local Services</i>	2	0	0
Metric 8 Delivery of annual capital Program (\$ spent)	<i>Core Area Wastewater</i>	1,762,000	5,000,000	34,000,000
	<i>Saanich Peninsula Wastewater</i>	1,604,000	2,000,000	2,800,000
	<i>Local Services</i>	2,316,000	900,000	8,000,000

Community Need

2023 Summary

Performance				
Definition and Source	Service	2021 Actual	2022 Forecast	2023 Target
Metric 9 Preventative maintenance completion (% of planned)	<i>Core Area Wastewater</i>	75%	80%	82%
	<i>Saanich Peninsula Wastewater</i>	91%	91%	92%
	<i>Local Services</i>	95%	95%	95%

Discussion

Link to Target Outcome

The KPIs link to the CRD's goals of safe, resilient and environmentally sound wastewater conveyance and treatment for our customers in the capital region and protection of the environmental and public health.

Discussion

- Metric 4: The costs for 2021/2022 are based on actuals. The 2023 forecast is based on planned and has a higher dollar value as there have been surpluses in 2021 and 2022. This results in a larger cost / ML planned in 2023 than the actuals.
- Metric 7: Complaints are given incident numbers. In 2021, complaints received from the same complainant was often logged under the same incident number therefore the number of complaints received is higher than listed. In 2022 each complaint is given its own distinct incident number, so the count will represent the actual number of complaints received.

Indicators that are being benchmarked in 2022/2023 include:

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

Wastewater

Initiatives approved in 2020, 2021 & 2022			
Ref	Initiative	% complete	Progress to date
8a-1	Wastewater Management through LWMP	100%	Lead: Environmental Protection (2020) Part of core services delivery - operational handover of all components to CRD complete
8a-1.1	Wastewater Management	100%	Lead: Wastewater Infrastructure Operations (2021) Part of core services delivery - operational handover of all components to CRD complete
8a-1.2	FM Centralization Strategy - FMW (CAWTP)	100%	Lead: Facilities Management & Engineering Services (2021) Completed recruitment completed in March 2021
8a-1.3	Saanich Peninsula Liquid Waste Mgmt. Plan -1&1	5%	Lead: Environmental Protection (2021 & 2022) Progressing – initial outreach; waiting for First Nation engagement direction before assembling technical meetings
8a-1.4	Biosolids Research Assistant - term position	100%	Lead: Environmental Protection (2022) Completed – position has been filled
8a-1.5	Lab Services CAWTP	100%	Lead: Environmental Protection (2022) Completed – position has been filled
8a-2	Stormwater Contaminant Sources	100%	Lead: Environmental Protection (2021) Part of core services

Wastewater

Background

The Capital Regional District (CRD) operates seven sub-regional and local wastewater services across the Greater Victoria area and the three Electoral Areas. The services range in size and infrastructure complexity – the Core Area Wastewater service includes sub-regional wastewater collection, conveyance and tertiary level treatment as well as biosolids management for seven municipalities and two First Nations, serving a population of approximately 320,000, while some of the local wastewater services serve fewer than 90 customers. Five First Nations governments are served through the sub-regional and municipal wastewater services. There are many stakeholders involved in the collection, treatment and disposal of wastewater and biosolids management, including senior governments who administers and enforces the applicable provincial and federal wastewater and environmental regulations and Island Health who oversee local public health impacts related to discharges.

Planning for 2023 and beyond

Each of the wastewater services has a capital plan which sets out the highest priority system infrastructure improvements. For the larger services, the capital plan is based on a longer term asset management plan, such as the Core Area Wastewater Service's 30 year capital Plan. The smallest services will typically have a five-year capital plan due to the complexity of the system and financial considerations. Typically, the recommended capital improvements are resulting from the need to replace infrastructure that is nearing the end of its service life, the need for increased service capacity, or regulatory changes.

The following provides a summary of the wastewater service capital plans:

Highlights since 2019

The CRD has allocated over **\$494M since 2019** on projects that advance the Wastewater Community Need. This was primarily funded through debenture debt, reserves and capital funds on hand.

Some of the projects included:

- Construction and commissioning of the Core Area Wastewater Treatment Program, including the McLoughlin Point Wastewater Treatment Plant, new conveyance system infrastructure including the Clover Point and Macaulay Point pump stations, the Residuals Treatment Facility and residuals solids conveyance system. The CRD, through the Project Board, planned, procured and constructed the Wastewater Treatment Program from May 2016 to May 2021. Work took place across three municipalities and within the traditional territories of the Esquimalt, Songhees, Tsartlip, Tsawout, Tseycum and Pauquachin Nations.
- Infrastructure upgrades to rehabilitate a number of existing wastewater systems including the Ganges System on Salt Spring Island, the North West Trunk and Bowker Trunk in the Core Area, the Saanich Peninsula Wastewater Treatment Plant and trunk sewers, and Phase 1 upgrades of the Magic Lake Wastewater Treatment Plant and conveyance system.

Community Need

Capital Plan Update

Appendix D



- Remediation of the Millstream Meadows contaminated site.

Project highlights for 2023

The CRD will allocate over **\$11M in 2023** on capital projects across the region that advance the Wastewater Community Need. These investments will be primarily funded through debenture debt, reserves and capital funds at hand.

Some of the projects include:

- Continuation of the upgrades of the Magic Lake Wastewater Treatment Plant and conveyance system.
- Continuation of the rehabilitation of the Bowker Trunk and upgrades to the building and electrical system at the Marigold Pump Station in the Core Area.
- Assessment of the SCADA and radio communication systems.
- Upgrades to the odour control system at the Saanich Peninsula Wastewater Treatment Plant.
- Ongoing minor capital work related to the optimization of odour control and treatment process systems at the McLoughlin Point Wastewater Treatment Plant.