

## 2 Water



Safe drinking water and a resilient water supply

### 01 Strategy

#### STRATEGIES & PLANS

- › Regional Water Supply Strategic Plan
- › Regional Water Supply Master Plan 2022-2050
- › Regional Growth Strategy

#### CORPORATE PLAN GOALS

- 2a High quality, safe drinking water
- 2b Reliable & efficient drinking water transmission system

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## 03 Operating Context

### ACHIEVEMENTS IN 2024

1. Procured a design consultant and completed the preliminary designs for the replacement of sections of **Regional Supply Main No.3 and No.4** and sections of the **Saanich Peninsula Water Supply System**. These projects will replace aging infrastructure, improve seismic resilience in the Regional and Saanich Peninsula Water supply systems and help continue to provide high quality, safe drinking water.
2. Continued to make significant progress on the proposed **Regional Water Development Cost Charge Program** including engaging Municipal councils, the public and development community as well as First Nations. 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 water supply system improvements identified in the 2022 Master Plan.
3. Implemented the start of a formal **Dam Safety group** for the Integrated Water Services (IWS). This included the hiring of a new Manager of Dam Safety and reallocation of existing staff. This group will oversee the safety and regulatory requirements of managing the 23 water supply dams owned and operated by IWS including 15 directly related to the Regional water supply system and the other 8 dams located within three other local water services.
4. Continued progress on the ongoing **AC Replacement Program for the Juan de Fuca Water Distribution system** which includes the design and replacement of aging distribution water mains while coordinating with various municipalities to align water main upgrades with municipal capital projects. By synchronizing critical infrastructure projects, the goal is to optimize resources and minimize impacts on the community. In 2024 between 3.4 and 4.2 kilometers of water main will be upgraded, which is significantly greater than the target annual replacement of 2.5 kilometers.
5. Completed the design, tendering and hiring of a Contractor to complete the **Goldstream Water Treatment Plan UV and Controls Upgrade for the Regional Water Supply System**.
6. Executed two **First Nation bulk water rate agreements**.
7. **Regional Water Supply Strategic Plan** draft update including actions and initiatives to support the strategic priorities and commitments for the service was completed in 2024, approval of the Plan will occur in 2025.
8. Advances in **forest resilience and fuel management** completing thinning and juvenile spacing projects
9. Progress in acquiring lands according to the **Greater Victoria Water Supply Area Land Acquisition Priorities**
10. Design and tendering of new **Field Operations Centre** facility
11. Completion of a **post wildfire emergency rehabilitation strategy** for the Sooke WSA
12. Adapted the **Water Quality Monitoring Program** to include newly developed and serviced areas and emerging new water quality risks.
13. Completed first of two years of water quality sensor deployment for developing a **3D Hydrodynamic Model of Sooke Lake Reservoir**. This model will inform e projects in the Regional Water Supply Master Plan and aid in protecting source water quality.

14. Completed the **Sooke Lake Food Web Study** to verify indicator species that can be monitored for detecting shifts and changes to the ecosystem.
15. Recertified the **CRD Laboratory** to ISO 17025 accreditation and EWQA Provincial approval.
16. Hosted the annual **Regional Water Quality Symposium**, an event that gathers regional stakeholders for discussions around drinking water quality topics. Feature topic of this year's event was Post-Disaster Drinking Water Supply in the region.
17. Implemented changes to the **Water Conservation Bylaw** to affect watering/irrigation behaviour to reduce peak flows on watering day mornings. These extreme peak flows are a risk to water infrastructure and to water quality. Slight behaviour changes have been observed since the bylaw change came into effect.

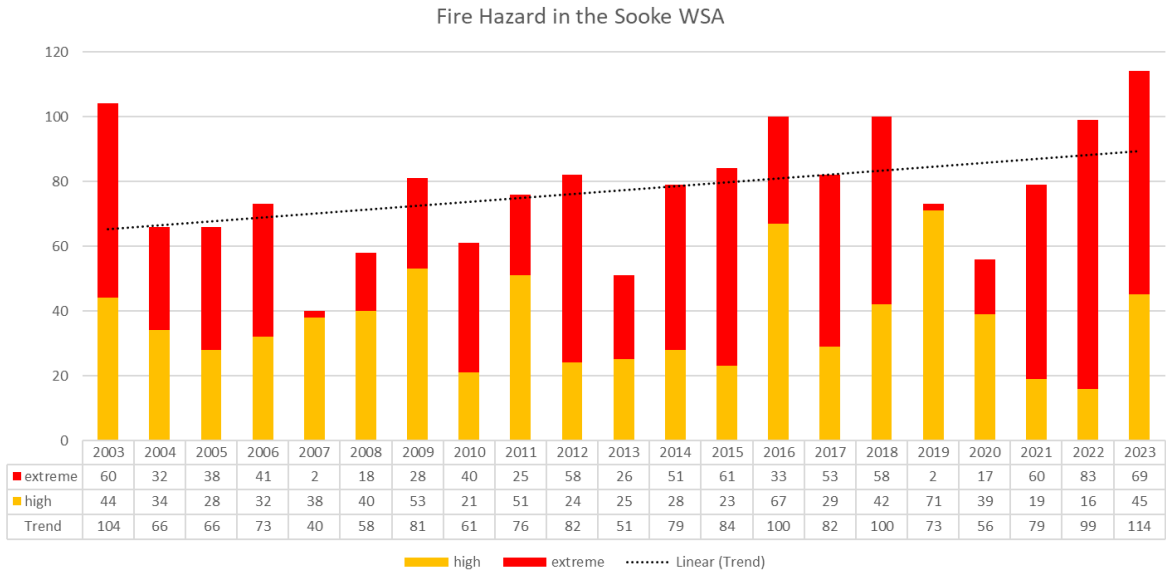
### FACTORS THAT WILL AFFECT OUR OPERATIONS IN 2025 AND BEYOND

- **Security and patrols:** there is an ongoing need to monitor for and respond to recreational pressure into the Greater Victoria Water Supply Area from Sooke Hills Wilderness Regional Park and from the rapidly developing residential area around Langford and Goldstream. During Extreme Fire Danger Rating, this creates additional risk to the Greater Victoria Water Supply Area and additional pressure on the Watershed team.
- **Climate Action:** the most significant risks for water services relate to climate and environmental changes. Predicted trends of drier, hotter summers will impact the water services in several ways:
  - Demand for water, including for local agricultural activities – this is monitored closely and evaluated against historical trends. Model predictions are updated for areas exhibiting higher than predicted demands. This will inform future infrastructure upgrades to meet growing demands.
  - Water quality may be affected due to increased biological growth in the source water and distribution system. The 2022 Regional Water Supply Master Plan recommends implementing filtration as a step in the treatment process by 2037.
  - In the Greater Victoria Water Supply Area, increasing periods of elevated wildfire risk, peak flows from winter storms, drought stress on trees, which could lead to increased mortality and forest pests/diseases.
  - Increased risk of power outages.
- **Infrastructure Vulnerability, Resiliency, and Emergency Preparedness:** there are increases in operational and system maintenance demands from a growing region combined with aging infrastructure. The 2022 Regional Water Supply Master Plan identified a strategy to address supply (quantity) and critical delivery infrastructure (redundancy) needs over the next 30 years. In addition to continuing to replace and refresh our existing assets to ensure they remain in a state of good repair, preliminary studies will also commence on the large elements identified in the Regional Water Supply Master Plan.
- **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.

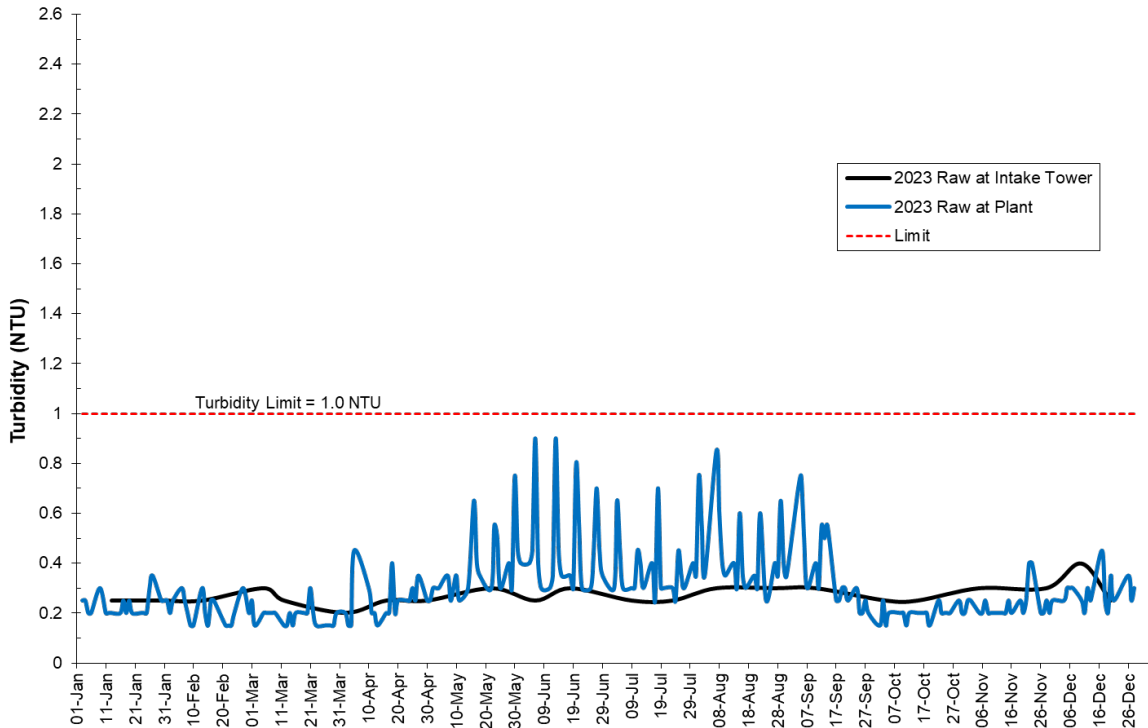
- The risk of assets not being maintained, replaced in a timely manner and failing could impact the CRD's ability to provide the expected water and wastewater level of service and could even result in environmental and public health and safety risks.
- The asset registry is an important step in ensuring 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.
- **Operational cost increases:** the costs of essential water system operating supplies, such as disinfection 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.
- **Regional Water Supply Strategic Plan (2025):** Actions and initiatives to support the strategic priorities and commitments were drafted in 2024. The 2025 plan, will undergo public engagement into 2025 with approval of the final Plan in 2025.
- **Rate Structure Review:** A new service delivery model for First Nations water servicing was successfully implemented with two participating First Nations in 2024 and will continue to be advanced with the other Participating First Nation through 2025. Through these agreements, the Regional Water Supply Service will become the service provider for participating First Nations governments.
- **Regulatory changes:** Potential regulatory changes affecting CRD Operating Permits are an ongoing risk to operations. New conditions for CRD Operating Permits may arise based on shifting risk assessments by Island Health Authority or new scientific guidelines by Health Canada (eg, emerging contaminants).

### OPERATIONAL STATISTICS

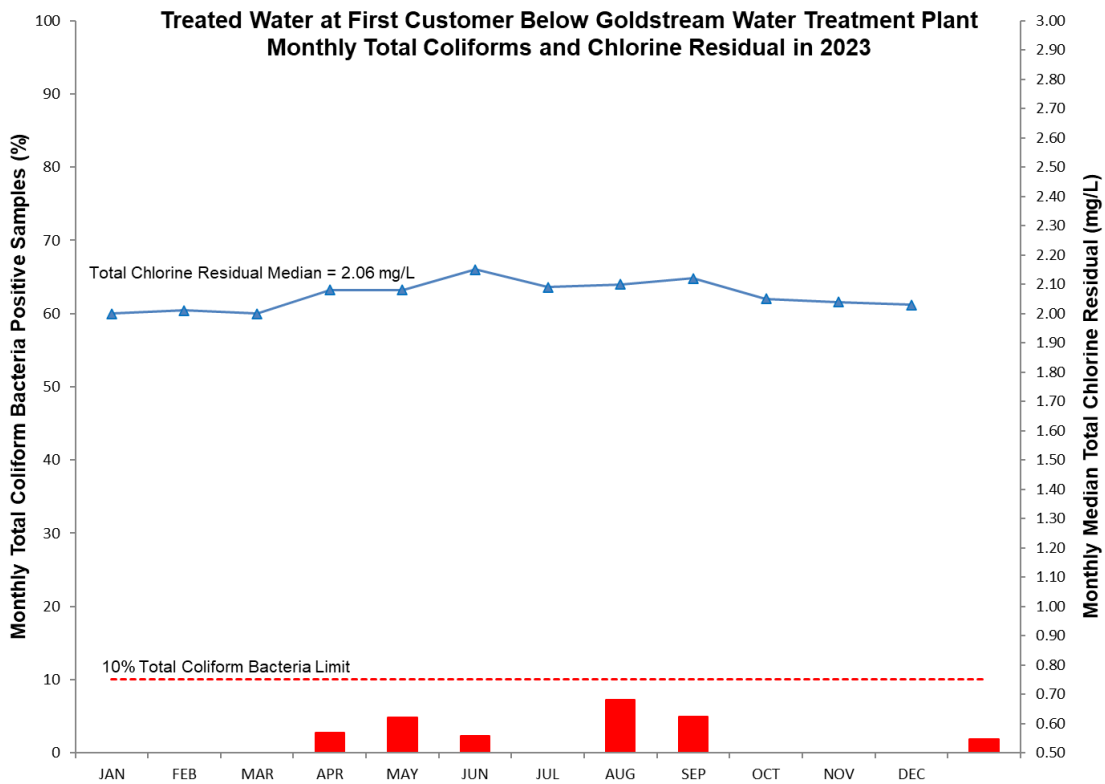
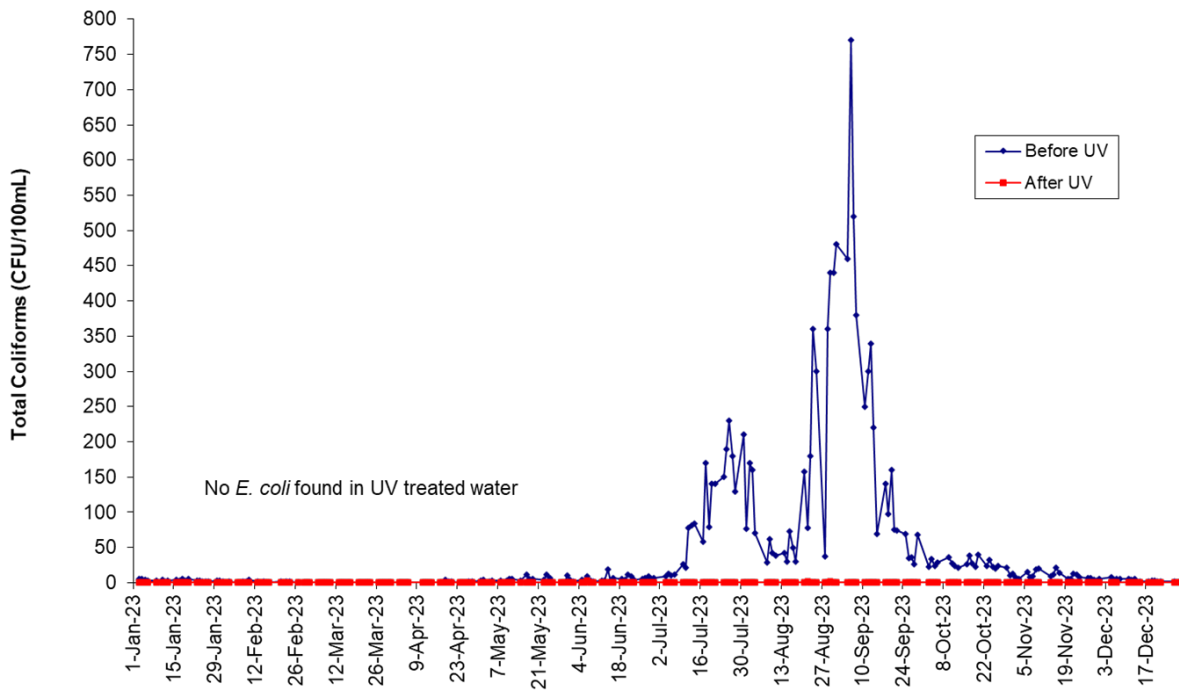
An example of the effect of climate change on the number of days of elevated wildfire risk in the Greater Victoria Water Supply Area:



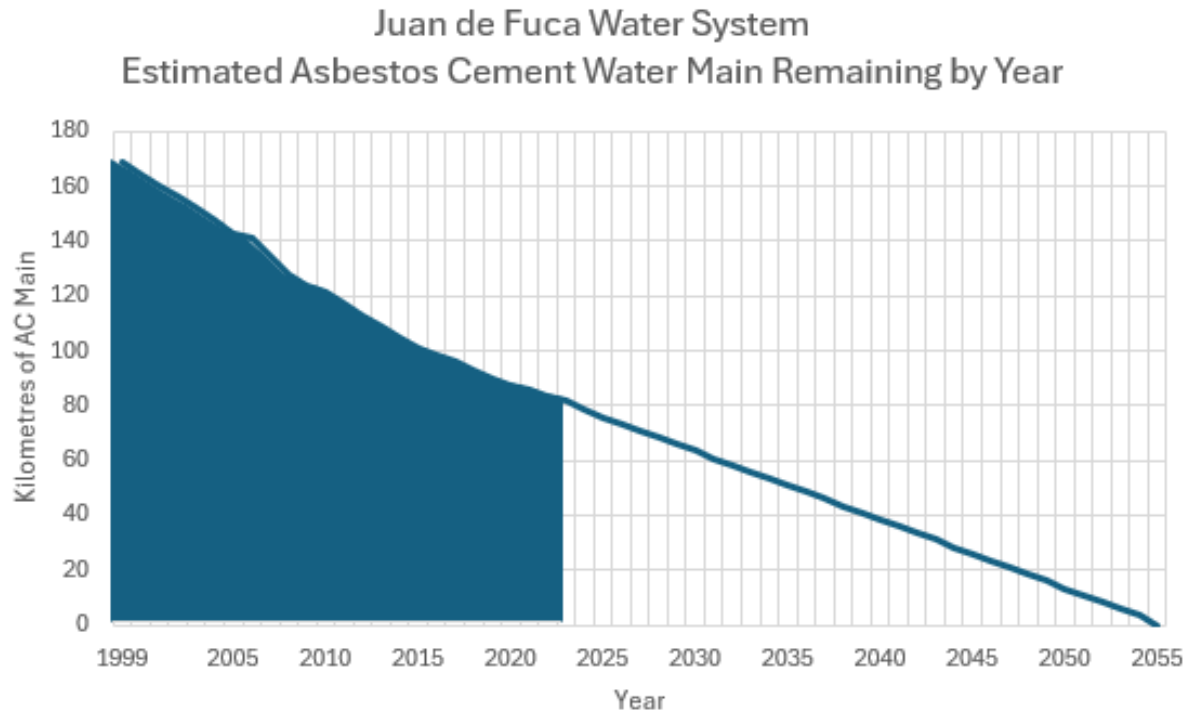
### 2023 Turbidity of Raw Water Entering Goldstream Water Treatment Plant



### 2023 UV Treated Water at Goldstream Water Treatment Plant Total Coliforms Before and After UV Treatment



The following graph shows the remaining Asbestos Cement pipe within the Juan de Fuca Water system. The CRD has prioritised the replacement of the Asbestos Cement water main to improve service reliability and minimize potential property damage due to water main breaks.



## 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.

### Water Supply & Distribution

Wholesale water supply to approximately 400,000 consumers in Greater Victoria and residents in three municipalities on the Saanich Peninsula, water distribution system within Langford, Sooke, View Royal, Colwood, East Sooke, Metchosin and Highlands supported through the following key service areas:

#### SERVICE BUDGET REFERENCES<sup>1</sup>

- › 2.670 Regional Water Supply
- › 2.680 Juan de Fuca Water Distribution
- › 2.610 Saanich Peninsula Water

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### 1. WATER SYSTEMS OPERATIONS AND MAINTENANCE

#### Description

Overseeing water treatment, supply, and distribution system operations and monitoring, along with the maintenance and management of facilities, consumables, and preventative upkeep. Responding promptly to water main breaks, system emergencies, and executing small capital projects to enhance infrastructure reliability.

#### What you can expect from us

- ▶ Collaborating with our team to ensure a consistent, reliable supply of clean drinking water to our customers every day
- ▶ Supply and distribution system operation
- ▶ System monitoring
- ▶ Customer service
- ▶ System and facility maintenance
- ▶ Consumables management
- ▶ Component preventative maintenance
- ▶ 24/7 emergency response to water main breaks and other system emergencies

#### Staffing Complement

Water Infrastructure Operations: **61 FTE (including 5 Managers and Administrative Support)**  
 Wastewater Operations also provides support through their Systems Maintenance group consisting of Electricians, SCADA Technicians, and Industrial Mechanics.

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<sup>1</sup> Service budget(s) listed may fund other services



## 2. INFRASTRUCTURE ENGINEERING

### Description

Overseeing the engineering, planning and capital project delivery related to water infrastructure including dams. Strategic asset management for all water systems including modeling and capacity analysis, vulnerability assessment, infrastructure renewal plans. Project design, procurement and delivery of capital projects annually on time/budget. Main installations, dam upgrades, equipment replacement and capital projects support.

### What you can expect from us

- ▶ Asset management and capital planning
- ▶ System expansion and growth planning
- ▶ Proactive capital planning for the water services with a 15-year outlook
- ▶ Ongoing condition assessment to inform the capital program and ensure water systems assets remain in a state of good repair
- ▶ Incorporating growth and expansion demands into future plans
- ▶ Development application and Referral reviews
- ▶ Implementing the Capital Improvement Program including Infrastructure renewal and upgrades
- ▶ Co-ordination of Capital programs with municipal partners
- ▶ Engineering support of utility operations for the water services.
- ▶ Ensuring dam safety and regulatory requirements are met.

### Staffing Complement

Water Supply Engineering and Planning: **3 FTE (including 1 Manager)**

Water Distribution Engineering and Planning: **6 FTE (including 1 Manager)**

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

Dam Safety: **3 FTE (Including 1 Manager)**

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## Watershed Protection

Forest land management of the 20,611 hectares of the Greater Victoria Water Supply Area to ensure high-quality source drinking water for the Regional Water Supply System through following service areas.

### SERVICE BUDGET REFERENCE<sup>2</sup>

- › 2.670 Regional Water Supply

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## 5. WILDFIRE, SECURITY & EMERGENCY RESPONSE

### Description

Watershed security, wildfire and spill preparedness, prevention and response.

### What you can expect from us

- ▶ 24/7 watershed emergency duty officer standby
- ▶ Security/wildfire patrols and standby (weekends and holidays; daily during elevated fire conditions)
- ▶ Wildfire detection by drone and air patrol during high and extreme fire hazard; infrared camera detection for the Sooke and Leech Water Supply Area.

### Staffing Complement

Watershed Protection: **9.5 FTE (including 1 Manager and Administrative Support) + leadership support**

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## 6. WATERSHED OPERATIONS

### Description

Silviculture, forest health and resilience, forest fuel management; invasive plant management; vegetation management and road maintenance, upgrades and rehabilitation

### What you can expect from us

- ▶ Winter/summer road maintenance
- ▶ Culvert and bridge upgrades to accommodate higher peak flows and changing climate as well as improving fish passage.
- ▶ Forest fuel and forest resilience treatments and fire smarting maintenance including brushing, thinning and chipping or burning of woody debris
- ▶ Brushing dam faces and around facilities, gates and fences
- ▶ Danger tree assessment and removal along roads and powerlines
- ▶ Invasive plants management

### Staffing Complement

Watershed Protection: **10 FTE (including 1 Manager) + leadership support**

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<sup>2</sup> Service budget(s) listed may fund other services

## 7. RESOURCE PLANNING

### Description

Wildlife management, ecological inventories and analyses, risk assessment and management, GIS and data management.

### What you can expect from us

- ▶ Development of a comprehensive watershed hydrology monitoring program
- ▶ Annual forest health survey
- ▶ Partnering in climate change and other research in the Greater Victoria Water Supply Area
- ▶ Management of beaver, Canada geese and bullfrogs
- ▶ School and public tours of the Water Supply Area and facilities

### Staffing Complement

Watershed Protection: **8 FTE (including 1 Manager) + leadership support**

## ENVIRONMENTAL PROTECTION

Regulatory and non-regulatory services and a support role across the organization that focuses on enhanced integration of drinking water quality protection programs and integration of communication initiatives.

### SERVICE BUDGET REFERENCES:<sup>3</sup>

- › 2.670 Regional Water Supply
- › 1.578 & 1.579 Environmental Protection

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## 8. WATER QUALITY 1.0

### Description

Monitoring, data analysis, assessment, reporting and technical advice to meet water quality regulatory requirements.

### What you can expect from us

- ▶ Source water and distribution system monitoring, assessment and reporting
- ▶ Physical, chemical and biological analytical services, assessment and reporting

### Staffing Complement

Environmental Protection: **11.0 FTE + leadership support**

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<sup>3</sup> Service budget(s) listed may fund other services

## 9. DEMAND MANAGEMENT

### Description

Research and data to inform capital planning, water conservation, and communications and education.

### What you can expect from us

- ▶ Accurate data
- ▶ Per capita targets (Residential and Industrial, Commercial and Institutional)

### Staffing Complement

Environmental Protection: **3.0 FTE + leadership support**

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## 10. CROSS CONNECTION CONTROL

### Description

Identification, registration, tracking and reporting of potential cross connection contamination sources in the Greater Victoria Drinking Water System.

### What you can expect from us

- ▶ Contamination prevention through facility inspections, testing and education for backflow prevention devices
- ▶ Monitor and track (>28,000) backflow prevention devices

### Staffing Complement

Environmental Protection: **4.6 FTE**

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## 11. COMMUNICATIONS & ENVIRONMENTAL EDUCATION

### Description

Public education and engagement in the region to promote sustainable behavior through campaigns, initiatives and services. Position is shared 80:20 with Wastewater communications support.

### What you can expect from us

- ▶ Increased public awareness of CRD messages and subsequent behavior changes (declining trend in per capita and per sector water use)

### Staffing Complement

Environmental Protection: **0.8 FTE + leadership support**

## 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)
2a-1 Update the Regional Water Supply Strategic Plan	2023-2025
2a-2 Implement the 2022-2050 Regional Water Supply Master Plan ▶ 2a-2.1 Contracts Coordinator ▶ 2a-2.2 Purchaser	Ongoing 2024-ongoing 2024-ongoing
2a-3 Review water rates in service agreements with First Nations	Ongoing
2a-4 Review and determine appropriate level of water subsidy used for agriculture	On Hold
2a-5 Active forest/ecological management to enhance forest health and resilience in the Water Supply Areas ▶ <b>NEW IBC</b> 2a-5-1 Seasonal Watershed Operator 2s	Planned for 2025 2025-ongoing
2a-6 Collect and analyze information for climate adaptation, reservoir management and the siting of new major infrastructure	Ongoing
2a-7 Implement a development cost charge program for the Regional Water Service	Ongoing

Initiative	Implementation year(s)
2a-8.1 <del>Water Quality Sampling Technician*</del> (withdrawn)	<del>2024-ongoing</del>
<ul style="list-style-type: none"> <li>▶ <b>NEW IBC</b> 2a-8.2 Water Quality Sampling Technician* (revised)</li> <li>▶ <b>NEW IBC</b> 2a-8.3 Laboratory Assistant</li> </ul>	<p>2025-ongoing</p> <p>2025-ongoing</p>
<p>2b-1 Enhance safety of aging dams, meet increasing regulatory requirements and mitigate against the risk of failures</p> <ul style="list-style-type: none"> <li>▶ 2b-1.1 Dam Safety Program – Integrated Water Services</li> </ul>	<p>2024-ongoing</p> <p>2024-ongoing</p>
<p>2b-2 Invest in and maintain capital assets, and undertake regulatory monitoring, to service current and future population and climate adaptation</p> <ul style="list-style-type: none"> <li>▶ <b>NEW IBC</b> 2b-2.1 Utility Operator Team Lead – Water Operations</li> <li>▶ <b>NEW IBC</b> 2b-2.2 Capital Project Resource</li> <li>▶ <b>NEW IBC</b> 2b-2.3 System Maintenance Electronics Technologist</li> <li>▶ <b>NEW IBC</b> 2b-2.4 System Maintenance Electrician</li> </ul>	<p>Ongoing</p> <p>2025-ongoing</p> <p>2025-ongoing</p> <p>2025-ongoing</p> <p>2025-ongoing</p>

*\*Not captured in the 2022-2026 Corporate Plan*

## 06 Performance

### GOAL 2A: HIGH QUALITY, SAFE DRINKING WATER

#### Targets & Benchmarks

The performance measures link to the CRD’s goals of safe, sustainable and resilient water resources for the Capital Region.

#### Measuring Progress

Performance Measure(s)	Service	Type	2023 Actual	2024 Forecast	2025 Target
<b>1. Regulatory Compliance<sup>1</sup></b>	Regional Water Supply	Quantity	None	None	None
	Juan de Fuca Water Distribution	Quantity	None	None	None
	Saanich Peninsula Water Supply	Quantity	None	None	None
<b>2. Water Quality Sampling (raw)<sup>2</sup></b>	Regional Water Supply	Quantity	15,522	18,832	18,832
<b>3. Water Quality Sampling (treated)<sup>3</sup></b>	Regional Water Supply	Quality	7,961	8,074	8,074
	Juan de Fuca Water Distribution	Quality	5,103	5,205	5,205
	Saanich Peninsula Water Supply	Quality	1,869	2,006	2,006
<b>4. Demand<sup>4</sup></b>	Regional Water Supply	Quantity	342	342	340
	Juan de Fuca Water Distribution	Quantity	303	303	300
	Saanich Peninsula Water Supply	Quantity	459	459	450

<sup>1</sup> Non-compliance with Island Health, provincial and federal regulatory requirements and operational certificates that result in Boil Water Advisories or Do Not Consume Events

<sup>2</sup> Water quality samples analyzed annually from source reservoirs (raw water)

<sup>3</sup> Water quality samples analyzed annually from transmission/distribution systems (treated water)

<sup>4</sup> Average day per capita water use (litres per capita per day)

#### Discussion

##### Measures 1-3: Regulatory Compliance and Quality Monitoring

- Water Quality Monitoring Program: In 2023, No Boil Water or Do Not Consume Advisories in 2023 were reported for three CRD drinking water services and regulatory sampling and testing requirements were met by 100%. The Regional Water Supply and the Juan de Fuca Distribution services had periods with minor non-compliances due to few samples with elevated indicator bacteria concentrations.
- Cross Connection Control program meets its objectives by enforcement of backflow prevention requirements referenced in the *BC Building Code* and is described by the Canadian Standard Association’s CSAB64 series. This is achieved through regulatory inspections, management of a backflow assembly registry, enforcing required testing and public education. In 2023, more than 800 facility audits of 327 moderate and 504 severe hazard facilities were conducted by the inspections team. Audit requirements achieved a 96% compliance rate. Continued focus was also on

construction sites and agricultural connections. The program processed 20,010 assembly test report submissions. Of these, 12,006 (60%) were processed through the CRD CCC online portal and the remaining 8,004 (40%) were manually entered from paper test report submissions, achieving an overall 74% compliance rate. Goal is to phase-out paper submissions and achieve higher test compliances.

#### Measure 4. Demand: average day per capita water use (litres per capita per day)

- Regional Water Supply: Total Regional Demand has been rising for the last five years after many years of a declining and the plateauing trend. This recent shift is attributed primarily to population growth and a diminishing regional inventory of water intensive household appliances that can be upgraded for water efficient ones. Per Capita Demand, after 25 years of decline, has been plateauing and even slightly rising in recent years. This may be caused by higher irrigation during frequent drought conditions but may also indicate a behaviour change by customers.
- Saanich Peninsula Water Supply: Water demand on the Saanich Peninsula is driven by agricultural demand and lack of residential densification.
- Juan de Fuca Water Distribution: Water demand in the Westshore communities is defined by two different categories: low per-capita demand in fast growing urban communities such as Langford, Colwood and View Royal due to dense development and little agriculture; and high per-capita demand in low-density communities such as Metchosin, Sooke/East Sooke and Highlands.



**GOAL 2B: RELIABLE & EFFICIENT DRINKING WATER TRANSMISSION SYSTEM**

Target & Benchmarks

The performance measures link to the CRD’s goals of safe, sustainable and resilient water resources for the capital region.

Measuring Progress

Performance Measure(s)	Service	Type	2023 Actual	2024 Forecast	2025 Target
<b>5. Operating cost<sup>5</sup></b>	Regional Water Supply	Quantity	\$112	\$115	\$117
<b>6. Energy usage<sup>6</sup></b>	Regional Water Supply	Quantity	66	66	66
<b>7. Watershed water release<sup>7</sup></b>	Regional Water Supply	Quantity	11,500	12,000	12,000
<b>8. Water-main leak repairs<sup>8</sup></b>	Juan de Fuca Water Distribution	Quantity	10	8	7
<b>9. Preventative maintenance<sup>9</sup></b>	Regional Water Supply	Quality	96%	98%	
	Juan de Fuca Water Distribution	Quality	94%	96%	
	Saanich Peninsula Water Supply	Quality	98%	98%	98%

<sup>5</sup> Annual operating cost per megaliter of drinking water treated and supplied/distributed

<sup>6</sup> Annual energy use (kWh) per megaliter of drinking water treated and supplied/distributed

<sup>7</sup> Volume of raw water released annually from Regional Water Supply watersheds to rivers to support fish habitat (megaliters)

<sup>8</sup> Number of water-main leak repairs and service line leaks annually per 100 kilometers of pipe (distribution systems)

<sup>9</sup> Preventative maintenance completed (% of planned)

Discussion

- N/A

## 07 Business Model

### Water Supply & Distribution, Watershed Protection

**PARTICIPANTS** **Regional Water Supply:** All Municipalities, Juan de Fuca Electoral Area, First Nations (via Distribution Systems)

**Saanich Peninsula Water Supply:** Municipalities (Central Saanich, North Saanich, Sidney)

**JDF Water Distribution:** Langford, Colwood, View Royal, Metchosin, Highlands, Sooke, Juan de Fuca Electoral Area

**FUNDING SOURCES** **Regional Water Supply:** Bulk water sales revenue

**Juan de Fuca Water Distribution System:** Retail water sales revenue in West Shore Municipalities

**Saanich Peninsula Water:** Wholesale water sales revenue

**GOVERNANCE** [Regional Water Supply Commission](#)  
[Water Advisory Committee](#)  
[Saanich Peninsula Water Commission](#)  
[Juan de Fuca Water Distribution Commission](#)

### Environmental Protection

**PARTICIPANTS** **Water Quality Service:** Allocation from Integrated Water Services and Local Service Areas (LSA) from the municipalities of Regional Water Supply area, Juan de Fuca and various local service areas, Sidney, North Saanich, Central Saanich and Peninsula First Nations

**Demand Management, Cross Connection Control Services:** water rate from all Municipalities and Electoral Areas

**Communications and Environmental Education:** all Municipalities and Electoral Areas

**FUNDING SOURCES** Water rate and requisition

**GOVERNANCE** [Regional Water Supply Commission](#)  
[Water Advisory Committee](#)  
[Saanich Peninsula Water Commission](#)  
[Juan de Fuca Water Distribution Commission](#)