



Water Use Planning and Management Study

To provide Council with KWL's Final Report for Phase 1 of the Water Use Planning and Management Study (WUPMS) and obtain Council direction for Phase 2 timing and scope of work



Executive Summary

Phase 1: Presented as a long-range planning document to guide future decisions on reliability, demand management, infrastructure investment, and environmental stewardship.

Acceptance: Does not commit Council to specific projects, costs, or timelines.

Primary constraints identified: Environmental Flow Needs (EFN), climate-driven hydrological change, and long-term growth.

Water Supply: Remains sustainable under current operations; coordinated demand management and phased investments are emphasized.

Phase 2: Staff are seeking Council direction for the Phase 2 timing and scope of work.

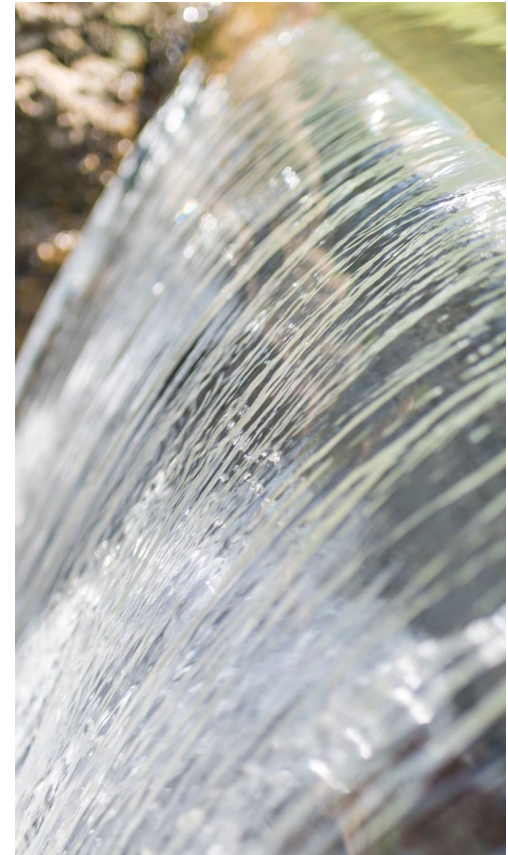
Recommendations from COP staff

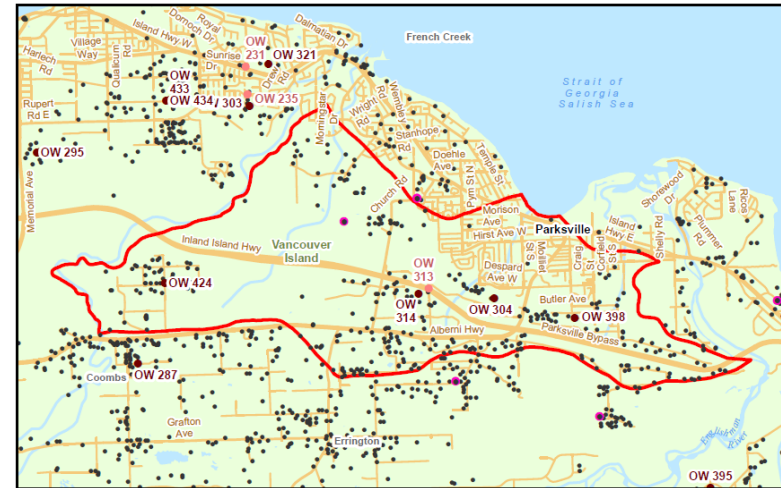
Receive the Manager of Utilities report dated June 10, 2026.

Receive the KWL Water Use Planning and Management Study dated June 5, 2026.

Provide direction on Phase 2 priorities and timing outlined in Attachment No. 1.

Direct staff to obtain a consultant quote and confirm whether the remaining Phase 2 budget is sufficient.





Background

KWL was selected in 2024 to complete a study supporting long-term water security for Parksville and the Nanoose Bay Peninsula Water Service Area.

Phase 1 assessed potable water sources, future capacity needs, storage feasibility, conservation measures, and hydropower generation options.

The system relies on surface water from the Englishman River and groundwater from local aquifers through partnerships with the ERWS and AWS.

Recurring summer restrictions, declining summer baseflows, growth, and climate change drove the need for the study.



Options

- 1) Receive KWL's Phase 1 Water Use Planning and Management Study for information.
- 2) Receive KWL's Phase 1 Water Use Planning and Management Study and confirm the scope of work for Phase 2 outlined in Attachment No. 1, with staff to confirm the budget allocation for this phase of the project.
- 3) Provide staff with alternate direction.

Analysis and Key Findings



The WUPMS: Technically robust planning document based on historical data, climate modelling, demand forecasting, and regulatory requirements.

The City currently has enough water: For drinking and fire protection needs within the OCP time horizon, but future options are needed over the longer term.

EFN requirements: Dominant constraint on surface water availability.

Groundwater diversion rates: Currently sustainable and may be increased subject to further work.

Climate change: Expected to increase seasonal demand while reducing summer surface water availability.

Demand Management: Can reduce peak demand, defer capital upgrades, and improve resilience.



Key Recommendations from Phase 1 Report

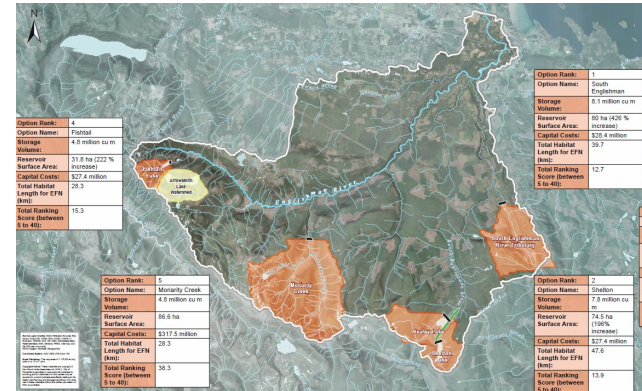
Surface water storage: Five (5) storage options identified – Four (4) recommended for further feasibility work on four preferred options;

- Staff also support further analysis of Arrowsmith Dam improvements and recommend eliminating Moriarty Creek from Phase 2.
- Council to confirm other options – priority and timing

Groundwater optimization and new supply: Investigate Aquifer 216 performance and possible new sources such as Aquifers 221, 1252, and unmapped gravel aquifer.

Side-stream storage feasibility: KWL states construction of fully man-made side stream storage is not economically feasible due to the water volumes and land area required. However, if Council wishes to explore this further, it can be assessed immediately, or included in Phase 2 scope for further assessment of location and costs.

Demand management and conservation: Evaluate rate reform, AMI, water loss control, outdoor water use measures, municipal irrigation efficiency, ICI design, and education.



Implications

Water Use Planning and Management: Directly supports sustainable water management and long-term supply resilience.

Climate Change Adaptation: Provides a technical basis for adapting supply and demand strategies.

Community Engagement: Supports communication with residents and businesses about conservation, restrictions, and long-term water security.

Intergovernmental Collaboration: Reinforces coordination with the RDN, provincial agencies, and regulatory partners.

Official Community Plan: Phase 1 and 2 results are expected to inform the 2027/28 OCP review.

LINE	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Asset Management & Strategic Plan Implications

Asset management: Long-range improvements are expected for the water treatment plant, high lift pump station, raw water pump station, transmission mains, and municipal irrigation assets.

Strategic Plan: The report is expected to inform the Official Community Plan review and the City's Water Use Planning and Management priority area.

Attachment No. 1

Proposed Phase 2 Scope of Work – Subject to Council direction

Multi Criteria Analysis & Preferred Water Supply Option Selection

Apply weightings to the KWL Phase 1 water supply options, and provide more in-depth analysis of costs, benefits, and other factors that affect each option:

- Surface Water Storage for Options 1 to 4
- Groundwater Optimization and New Supply Feasibility (aquifers 221, 1252, unmapped gravel & sand aquifer)

Side-stream Storage Feasibility

KWL indicated further analysis would cost about \$20,000 if all other Phase 1 tasks are prioritized. However, this final cost can be assessed in the context of the overall budget for the Phase 2 as staff do not anticipate all tasks being pursued.

Water System Capacity Expansion Planning

Phase 2 will review and recommend further actions

Advanced Economic & Lifecycle Analysis

Phase 2 will refine these costs for Council decision support.

Demand Management & Conservation Strategy Implementation

Multi-criteria options analysis on the management measures and targeted demand reduction options

Regulatory, Permitting, & Indigenous Engagement

Future land based storage options will require a coordinated, multi-jurisdictional approach and long-term planning.



Thank you