

**AGENDA
OPEN COUNCIL**

June 15, 2026

DATE

June 10, 2026

REPORT TO: K. KEHLER, CHIEF ADMINISTRATIVE OFFICER

FROM: K. TESCHKE, MANAGER OF UTILITIES

SUBJECT: WATER USE PLANNING AND MANAGEMENT STUDY PHASE 1

PURPOSE: *To provide Council with KWL's Final Report for Phase1 of the Water Use Planning and Management Study and seek direction for Phase 2 timing and scope of work*

EXECUTIVE SUMMARY:

Staff are seeking Council acceptance of the Water Use Planning and Management Study (WUPMS) - Phase 1 as a long-range planning document intended to guide future decisions related to water supply reliability, demand management, infrastructure investment, and environmental stewardship.

Acceptance of the WUPMS does not compel Council to implement any specific projects, programs, or capital expenditures, nor does it bind Council to timelines identified by KWL in the Study. Rather, the WUPMS recommendations are intended to function as a technical and policy framework to support Council deliberations during future financial planning, utility planning, asset management, and Official Community Plan processes.

The WUPMS identifies Environmental Flow Needs (EFN) in the Englishman River, climate-driven hydrological change, and long-term growth as the primary constraints on system reliability. The WUPMS confirms that water supplies remain sustainable under current operation and emphasizes the importance of coordinated demand management and phased supply investments.

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

RECOMMENDATION:

1. THAT the report from the Manager of Utilities dated June 10, 2026, entitled "Water Use Planning and Management Study Phase 1" be received.
2. THAT the KWL Water Use Planning and Management Study dated June 5, 2026, be received.
3. THAT Council provide direction to staff on priorities and timing for the Phase 2 scope of work outlined in Attachment No. 1.
4. That staff be directed to obtain a quote on the Council approved scope of work for Phase 2 from KWL and determine if the current budget allocation of \$431,000 is sufficient.

BACKGROUND:

On August 12, 2024, the City of Parksville (City) received responses from two (2) engineering consulting firms to complete a Water Use Planning and Management Study to review the factors required to ensure the community has a sustainable and resilient water supply, now and into the future. Kerr Wood Leidal Associates Ltd. (KWL) was selected as the preferred proponent to provide consulting services for this study. Uncertainty about the effects of climate change, population growth, the current capacity of the Englishman River Water Service (ERWS) water treatment plant, senior government licensing rules and the availability to extract water from the Englishman River,

and groundwater availability poses challenges in managing the drinking water system. This study helped staff understand what is required for future planning, management, and funding, which are essential to ensure water security for the City and the Nanoose Bay Peninsula Water Service Area (NBP WSA).

Phase 1 of the project included a comprehensive assessment of the City's and NBP WSA potable water sources, capacity needed to meet future demands, storage feasibility options, additional conservation measure options, and hydro power generation options. This project identified and made recommendations to address the resilience of the existing water system, and identified current/future risks, while considering population growth and the impacts of climate change on the City's water system.

The City's potable water supply is provided through a combination of surface water from the Englishman River and groundwater drawn from local aquifers. The City operates the surface water system in partnership with the Regional District of Nanaimo (RDN) through the ERWS and with the RDN and Town of Qualicum Beach through the Arrowsmith Water Service (AWS) joint ventures.

Recurring summer water conservation measures, declining summer river base flows, and the increasing influence of climate change on watershed hydrology have highlighted vulnerabilities within the existing system. These challenges, combined with long-term population growth projections and regulatory requirements for EFN, prompted the development of a comprehensive WUPMS.

The WUPMS's objectives included:

- Assessing existing and future water demands;
- Evaluating water supply reliability under current and projected climate conditions;
- Identifying strategies to improve system resilience and reliability; and
- Balancing community water needs with protection of aquatic ecosystems.

The draft Phase 1 WUPMS report was presented to Council on January 27th, 2026. Phase 1 of the WUPMS and its supporting technical appendices have now been completed and presented to Council along with this staff report. The final report for Phase 1 of the Water Use Planning and Management Study is available [online](#).

Key conclusions of KWL's Phase 1 of the WUPMS include:

- The City currently has sufficient water to meet community drinking water and fire protection demand, along with projected growth envisioned in the 2013 OCP, but future planning and supply options will be required as the population grows over the longer term.
- EFN requirements in the Englishman River are the dominant constraint on surface water availability.
- Groundwater diversion rates are currently sustainable and could potentially be increased.
- Climate change is expected to increase seasonal demand while reducing summer surface water availability.
- Demand management provides meaningful opportunities to reduce peak demand, defer capital upgrades, and improve system resilience.

Acceptance of the WUPMS recommendations in principle allows Council to recognize and rely on its analysis without committing to specific capital projects, costs, or implementation timelines. The WUPMS is intended to inform, not prescribe, future decisions.

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:

The WUPMS is a technically robust planning document informed by historical data analysis, climate modelling, demand forecasting, and regulatory requirements.

If Council chooses Option 1, it can provide direction to staff at a later date for the Phase 2 priorities. This may be the preferred option if Council members want more time to digest the lengthy report and recommendations or make arrangements to meet with staff for further discussion on the technical components and implications for the recommended items contained in the KWL report.

If Council is confident with the scope of work it wants to see initiated for Phase 2, Option 2 may be appropriate. Staff provide recommendations on the scope in Attachment No. 1, however, this is subject to confirming the budget with the consultant.

Please see the Financial Implications section of this staff report for more information on the project budget.

KEY RECOMMENDATIONS FROM KWL PHASE 1 REPORT

To further investigate or implement recommendations from the Phase 1 report, direction from Council to staff is required regarding the priority and timing for future feasibility analysis of the following items. After review of the WUPMS, staff wish to highlight the following consultant recommendations for Council consideration:

1) Surface Water Storage Options:

In Phase 1, KWL identified five (5) surface water storage options and provided preliminary storage volumes, cost estimates, hydrology, possible EFN impacts, and multi criteria scores. Four (4) options ranked similarly as preferred options and are recommended for further feasibility analysis.

Raising Arrowsmith Dam lake level – KWL recommends against this, but staff think it has merit for further analysis as an economically viable short-term option to increase reliability.

Staff recommend eliminating Option 5 Moriarty Creek from Phase 2, but including more in-depth analysis of improvements to the Arrowsmith Lake Dam

2) Groundwater Optimization & New Supply Feasibility:

In Phase 1, KWL concluded that Aquifer 216 is sustainable at current use but stressed seasonally, and that new sources (e.g. Aquifers 221, 1252, and a currently unmapped sand and gravel aquifer) warrant further investigation.

Completing the investigation as a 'Groundwater Execution Plan', as referenced in the KWL report, could be implemented in 2027, including performance monitoring and optimization of the existing City wells and exploration of potential new groundwater sources.

The cost of developing a new groundwater source is not included in the KWL ten-year forecast based on the assumption that such a project would only proceed if either:

- It is more cost-effective than developing a new surface water source and yields equivalent benefit in terms of water supply capacity and reliability for the City's projected needs, and would replace that project; or
- It cost-effectively enables the surface water project to be delayed by several years.

Staff recommend that the consultant undertake this investigation as part of Phase 2.

3) Side-stream Storage Feasibility:

KWL notes in Phase 1 that construction of fully man-made storage is not considered to be economically feasible due to the water volumes and land area required. For example, KWL cites a 3 m deep pond would require an area of 160 ha to hold 4.8 Mm³. This is roughly equivalent to a 3 m deep pond covering about 220 soccer fields or the equivalent of volume of about 1,920 Olympic-sized swimming pools. Land near or in the City may be too costly to allocate to this use and may not meet topographical standards for this to be implemented. Permitting requirements are unknown but may be challenging to obtain given the large area of riparian land/ habitat that could be impacted.

KWL has advised that additional analysis of this item may require a change order and budget adjustment. It is anticipated the analysis would cost about \$20,000, however, this final cost can be assessed in the context of the overall budget for the Phase 2 scope of work.

4) Demand Management & Conservation Strategy Development:

To address both operational efficiency and customer-side conservation, the WUPMS organizes the proposed programs into two categories: management measures and targeted demand reduction. If implemented, these opportunities may also defer costly infrastructure upgrades by reducing seasonal outdoor demand.

KWL recommended the following management measures for further analysis and/or implementation:

- Rate reform: Parksville currently uses an inclining block rate structure; however, the fifth-tier declines in unit price, which sends a counterproductive pricing signal to the highest water users.
- Automated Metering Infrastructure (AMI): Parksville began using mechanical water meters in the 1980s, however, additional benefits may be achieved by upgrading the AMI. Automated meters transfer data real-time through a cellular network.
- Water Loss Control: The City currently responds to reported system leaks on a reactive basis. While this may help maintain losses within a manageable range, there is significant potential to expand and systematize this work with the objective of reducing water loss.

KWL recommended the following targeted demand reduction measures for further analysis and/or implementation:

- Municipal landscape and irrigation asset renewal and efficiency improvements.
- Outdoor water use measures.
- Industrial-Commercial-Institutional (ICI) and water efficient design.
- Education and engagement.

Staff concur with these recommendations being included in the scope of work for Phase 2.

WATER USE PLANNING AND MANAGEMENT STUDY IMPLICATIONS:**Water Use Planning and Management:**

The WUPMS directly supports Council's objectives related to sustainable water management and long-term supply resilience.

Climate Change Adaptation:

The Plan provides a technical foundation for adapting water supply and demand strategies in response to projected climate change impacts.

Community Engagement:

The Plan supports ongoing communication with residents and businesses related to water conservation, restrictions, and long-term water security. Council has explicitly required inclusion of this document on the reference list to be considered during the OCP Review process.

Intergovernmental Collaboration:

The Plan reinforces collaboration with the Regional District of Nanaimo, provincial agencies, and regulatory partners.

Official Community Plan Review and Update:

The OCP is scheduled for review in 2027/ 28 and the recommendations, conclusions and data provided in Phase 1 and 2 of the WUPMS will inform the community engagement, priority setting, asset and infrastructure planning and support Council decisions related to drinking water planning and establishing environmental objectives.

Staff recommend Council consider the acceptance of the KWL recommendations from the Water Use Planning and Management Study Phase 1 in principle to support informed decision-making related to water supply, demand management, and infrastructure investment, and proceed with the Phase 2 scope of work outlined in Attachment No. 1, subject to confirmation of the budget required to complete those tasks.

FINANCIAL IMPACT:

In its 2023-2027 Financial Plan, Council allocated \$750,000 of the Growing Communities Grant funding to this project and the ERWS contributed an additional \$125,000, for a total minor capital project budget of \$875,000. The City's 2026-2030 Financial Plan includes the City's remaining grant funding of \$431,200 for Phase 2 of the project, currently allocated in 2026.

The estimated cost of undertaking feasibility and preferred option analyses will depend on the direction of Council regarding the KWL Phase 1 recommendations listed in this report. It is not known if the remaining grant funding will be sufficient for all of those analyses. Staff recommend Council confirm the timing and priority items for Phase 2 and direct staff to work with KWL to obtain a quote for the priority tasks approved by Council.

Estimated costs for the implementation of any of the recommendations that may come from feasibility and preferred option analyses have not been included in the City's 2026-2030 Financial Plan. Financial plan amendments following Council's receipt of Phase 2 reports will require specific Council direction.

ASSET MANAGEMENT IMPLICATIONS:

It is expected that the City's assets will be renewed as part of the long-range improvement plan for the water treatment plant, high lift pump station, raw water pump station, water transmission mains, and municipal landscape and irrigation improvements.

STRATEGIC PLAN IMPLICATIONS:

The report will be considered during the **Official Community Plan Review** and update and is expected to inform community objectives on land use designations, water conservation goals and infrastructure priorities.

This report has strategic implications for the **Water Use Planning and Management** priority focus area. The actions from this report are expected to improve the City's water use planning and management now and into the future.

REFERENCES:

Water Use Planning and Management Study (Phase 1) Final Report

Respectfully submitted,

Original signed by K. Teschke

K. TESCHKE, P.ENG.
Manager of Utilities

REVIEWED BY:

Original signed by K. Martin

K. MARTIN, CTech, RTMgr
Director of Operations

Original signed by J. Holmes

J. HOLMES, CPA, CA
Director of Finance

CHIEF ADMINISTRATIVE OFFICER ENDORSEMENT:

Original signed by K. Kehler

K. KEHLER, MPA
Chief Administrative Officer

Attachment No. 1
Proposed Scope of Work for Phase 2
Water Use Planning and Management Study
CoP Staff recommendations for Priority projects, subject to confirmation of budget

Staff have reviewed the KWL report and Phase 1 recommendations and believe that the following tasks are worthy of further consideration and analysis. Staff would like to confirm that these items are achievable within the remaining project funds (\$431,000) prior to considering the award of the Phase 2 work.

PHASE 2 - WATER USE PLANNING AND MANAGEMENT STUDY RECOMMENDATIONS:

1) Multi Criteria Analysis & Preferred Water Supply Option Selection

Multi-criteria analysis will 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:
 - Conduct engineering and environmental investigation of 4 candidate sites
 - Complete detailed feasibility assessment
 - Confirmation of EFN targets for the South Englishman River to support future water source development
- Groundwater Optimization and New Supply Feasibility:
 - New groundwater source assessment
 - Existing wellfield(s) performance monitoring and optimization
 - Groundwater numerical modelling of aquifers

Staff recommend further analysis of the option to raise the current Arrowsmith Dam to determine what target reliability could come from improvements at the dam, and that this be added into the Phase 2 Multi-criteria Options analysis. The WUPMS recommends that, "Although there are potential improvements that can be made at Arrowsmith Dam to optimize the current reservoir and access to the lower storage volume, there is not enough inflow from the watershed to warrant increasing the storage in attempts to meet the target reliability goals."

2) Side-stream Storage Feasibility

Staff have received a proposal from KWL to review this option in greater detail surrounding Phase 1 works. Should this work be awarded, KWL will:

- Determine duration of operational period and volume required for overland storage facility
- Review feasibility of location in close proximity to Englishman River
- Prepare conceptual design for selected option
- Prepare conceptual cost estimate
- Add option to multi-criteria options analysis table to compare to other storage options
- Provide a Technical Memorandum regarding these items and the findings

3) Water System Capacity Expansion Planning

Phase 1 found that the ERWS WTP will be undersized by the mid-2040s and pump stations by the early-2050s, unless mitigated, based on future water conservation strategies. Phase 2 will review and recommend further actions for implementing these items in the future.

4) Advanced Economic & Lifecycle Analysis

Phase 1 provided Class D lifecycle costs; Phase 2 will refine these costs for Council decision support.

5) Demand Management & Conservation Strategy Implementation

Phase 2 shall complete a multi-criteria options analysis on the management measures and targeted demand reduction options.

6) Regulatory, Permitting, & Indigenous Engagement:

Future land-based storage options will require a coordinated, multi-jurisdictional approach and long-term planning. The regulatory environment is complex and evolving. If approved by Council, Phase 2 work will provide guidance on navigating the next steps for future surface storage priority projects. This work will include:

- Developing a regulatory roadmap for each preferred option.
- Identify best practices, timelines, costs for initiating a meaningful engagement project with Snaw'naw'as First Nation and Qualicum First Nation as part of the future water planning process.
- Identify key senior government agencies involved in water planning and regulation and recommend best practices for coordination of long-term drinking water planning and strategies and permitting processes (WLRS s.9 approvals, DFO, Dam Safety Act, water licences).