

Executive Summary

The Town of Wainwright is at a pivotal decision point regarding the future of its potable water supply. For over four decades, the Town has relied on treated water from the Department of National Defence (DND) via the Betty Lake Water Treatment Plant (WTP) at CFB Wainwright. However, aging infrastructure, evolving regulatory requirements, and a shift in DND's capital funding approach—potentially requiring the Town to fund 86% of upgrades without receiving ownership—have prompted a comprehensive review of alternative water supply strategies. Select Engineering Consultants Ltd. was retained to evaluate viable long-term solutions that ensure reliable, cost-effective, and sustainable water service for Wainwright and the surrounding communities.

The study assesses three primary options: (1) rehabilitating the existing DND-operated WTP, (2) constructing a new municipally owned and operated WTP, and (3) connecting to regional water suppliers such as the Highway 14 Regional Water Services Commission (RWSC) or the Alberta Central East (ACE) Water Corporation. Each option is analyzed based on technical feasibility, capital and operational costs, regulatory compliance, and the ability to meet projected water demands over a 25-year horizon. The study also considers the broader regional context, including the needs of CFB Wainwright, the Villages of Edgerton and Chauvin, the Hamlets of Fabyan and Greenshields, and rural bulk water stations for the MD of Wainwright.

Population forecasts indicate that the Town of Wainwright could nearly double in size by 2051, with the total service population across the region approaching 15,000. These projections inform the design criteria for average and peak water demands, ensuring that any selected solution can accommodate both current and future needs. The study also accounts for anticipated increases in agricultural and commercial water use at bulk water stations, particularly in Irma and Giltedge.

Rehabilitating the existing DND system would involve replacing the raw water pipeline, constructing a new WTP and pumphouse, dredging Betty Lake, and building a new outfall to the Battle River. Estimated capital costs total approximately \$73.3 million, with annual operating costs projected at \$2.2 million. However, the lack of ownership and control over the infrastructure raises concerns about long-term sustainability and financial equity for the Town.

Alternatively, constructing a new WTP would provide the Town with full ownership and operational autonomy. Three service scenarios were evaluated, with capital costs ranging from \$131 million to \$146 million depending on the scale of service. The proposed facility would source raw water from the Battle River and include advanced treatment technologies to meet Alberta Environment and Parks standards. While this option offers long-term control, it also presents challenges related to land acquisition, environmental approvals, and coordination with federal agencies—particularly if a new intake is located near existing DND infrastructure.

The study also evaluates regional integration options. Connecting to the Highway 14 RWSC would require significant upstream and downstream infrastructure upgrades, with total capital costs estimated at \$252 million. Although this option could reduce operational responsibilities for the Town, it is constrained by the RWSC's current capacity and would require extensive coordination and rate negotiations.

Similarly, connecting to the ACE Water Corporation presents an alternative regional solution. ACE has expressed interest in expanding its service area and participated actively in the study. Required infrastructure upgrades include upstream improvements and a 61 km transmission main from Vermilion to Wainwright, with total capital costs estimated at \$146 million. As with the RWSC option, water utility rates would be based on a full cost recovery model, and further engagement with ACE is necessary to refine cost estimates and confirm capacity.

In closing, this report recommends initiating pre-design and further investigation into the option of connecting to the ACE Water Corporation system, as funding opportunities are expected to be significantly higher for this option through the Water for Life program administered by the Alberta Government.