

ERWS was awarded a \$1.3 million grant from Canada's Gas Tax Fund for ASR analysis.

2012 and 2013

- Ongoing water quality analysis
- ASR Investigation
- Public consultation and finalize approvals / permits
- Complete ASR feasibility analysis
- Secure senior government funding
- Preliminary design and value engineering

2014 to 2016

- Detailed design of intake, water treatment plant and water transmission mains
- Funding approval
- Tender construction contracts
- Construction and commissioning
- Operation and maintenance of new facilities
- ASR implementation



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We hope you will keep this brochure for future reference.

For more detailed information and updates, please see the website

arrowsmithwaterservice.ca



An environmentally sensitive use of water to improve fish habitat and domestic water supply.



AWS – Parksville, RDN, QB | ERWS – Parksville, RDN

Background and history

Drinking water is the public's principal natural resource and ensures our best security for the future. Planning for water supply dates back many years; building the Arrowsmith Dam in 1999 secured storage and the next phase will see the construction of an improved intake and state-of-the-art water treatment facility. This will mitigate our current risks and ensure a safe, secure drinking water source for the future.

We are fortunate to have two sources of water supply - from wells and from the Englishman River. However, we currently cannot use the Englishman River source year round as it becomes too muddy (turbid) in the fall and winter. With water treatment on the Englishman River, we will be able to draw and treat surface water year round.

Governance

The Arrowsmith Water Service (AWS) is a joint venture formed to secure a bulk water supply from the Englishman River for the City of Parksville, the Regional District of Nanaimo and the Town of Qualicum Beach. This water supply supplements existing well-supply sources owned and operated by the individual jurisdictions.

The Englishman River Water Service (ERWS) joint venture agreement with the City of Parksville and the Regional District of Nanaimo as joint venture participants complements the AWS agreement. The ERWS joint venture was formed because both Parksville and the RDN need additional water intake capacity and improved surface water treatment. Qualicum Beach will retain interest in the Arrowsmith Dam including the annual operations and maintenance but not in future capital works of the new water intake, treatment facility and aquifer storage and recovery wells.

Interest in joint venture agreements:

	AWS	ERWS
City of Parksville	63.9%	74%
Regional District of Nanaimo (Nanoose 14.4%, French Creek 8.0%)	22.4%	26%
Town of Qualicum Beach	13.7%	nil

Why do we need a new intake and water treatment plant?

The ERWS will expand the water supply system with a new surface water intake and water treatment plant along the Englishman River. This is required to ensure that an adequate volume of bulk water can be provided and that the water meets today's standards for good quality drinking water.

There are many factors contributing to the need to expand the water supply infrastructure which include greater reliability and security, higher drinking water quality standards and additional supply for the future.

The new intake will be located at a bend along the river, slightly upstream of the Highway 19 crossing. The water treatment plant site (8.7 hectares) is an abandoned gravel pit behind the City of Parksville public works yard.

By 2016, in order to comply with a Vancouver Island Health Authority new operation rule, the region's surface water supply must be treated to a higher standard to mitigate any potential health risks.

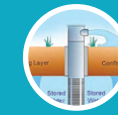
Fisheries Benefits

The Englishman River provides habitat for five species of salmon and three species of trout. It is also one of Vancouver Island's major steelhead rivers. Protecting and enhancing this fish habitat is important to AWS partners.

Approximately half the water stored in the Arrowsmith Lake reservoir is for fisheries purposes to supplement low summer flows in the Englishman River. Along with the water released for consumption and domestic use, this additional water creates better spawning and migration conditions for the fish in the river. In accordance with the requirements of its water licence, the AWS works cooperatively with federal and provincial fisheries departments to manage the additional summer flows.



Future Water Supply System – How it Works



Aquifer Storage and Recovery or ASR is defined as the storage of water in a suitable aquifer when water is available and recovery of the same water later on when it is needed.

Arrowsmith Water Service (AWS) Reservoir and Dam

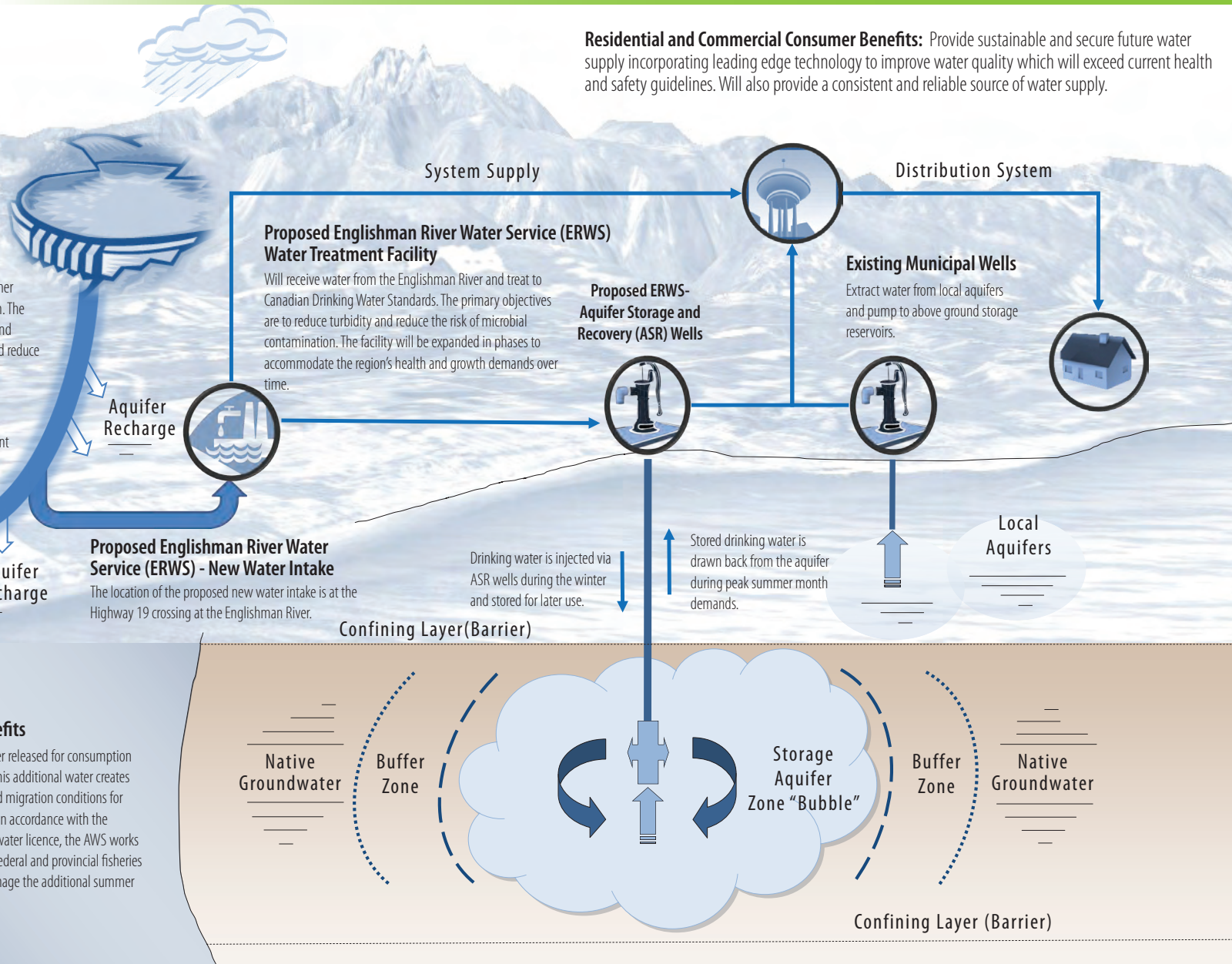
The purpose of the Arrowsmith Reservoir is to collect and store water during the winter. The Arrowsmith Dam controls the release of water from the Arrowsmith Lake Reservoir to the Englishman River during the summer for fisheries enhancements and potable water extraction. The additional flow released from the dam helps augment and stabilize summer river flows that support aquatic life and reduce impacts on groundwater.

Englishman River

The Englishman River serves as a natural waterway that conveys water from the Arrowsmith Reservoir to the point of extraction from the river. Not all water released from the Arrowsmith Dam makes it to the extraction point; depending on the time of year, water is lost through evaporation and into the ground which helps recharge the Englishman River aquifer.

Fisheries Benefits

Along with the water released for consumption and domestic use, this additional water creates better spawning and migration conditions for the fish in the river. In accordance with the requirements of its water licence, the AWS works cooperatively with federal and provincial fisheries departments to manage the additional summer flows.



Residential and Commercial Consumer Benefits: Provide sustainable and secure future water supply incorporating leading edge technology to improve water quality which will exceed current health and safety guidelines. Will also provide a consistent and reliable source of water supply.

A Look at Aquifer Storage and Recovery

The ERWS is now investigating ASR to determine if the concept is feasible and to confirm that a confined aquifer is available.

ASR would create an additional supply for the ERWS which would provide more contingency should one supply source be taken offline allowing the ERWS greater flexibility in managing the water resources. ASR can reduce the maximum amount of water that needs to be supplied by the treatment plant. This means less water will need to be drawn from the Englishman River during the summer when water levels are at their lowest and when supply is most challenged to meet peak consumer demands and fisheries requirements.

ASR Benefits

- Provides a third water supply
- Provides balanced water supply
- Reduced water treatment plant size
- Provides cooler water to consumers in summer months
- More feasible and less expensive than conventional above ground storage systems
- Potential groundwater improvements
- Water from winter months is stored for use in the summer
- Potential to reduce Englishman River water extraction up to 50% in critical summer months

