

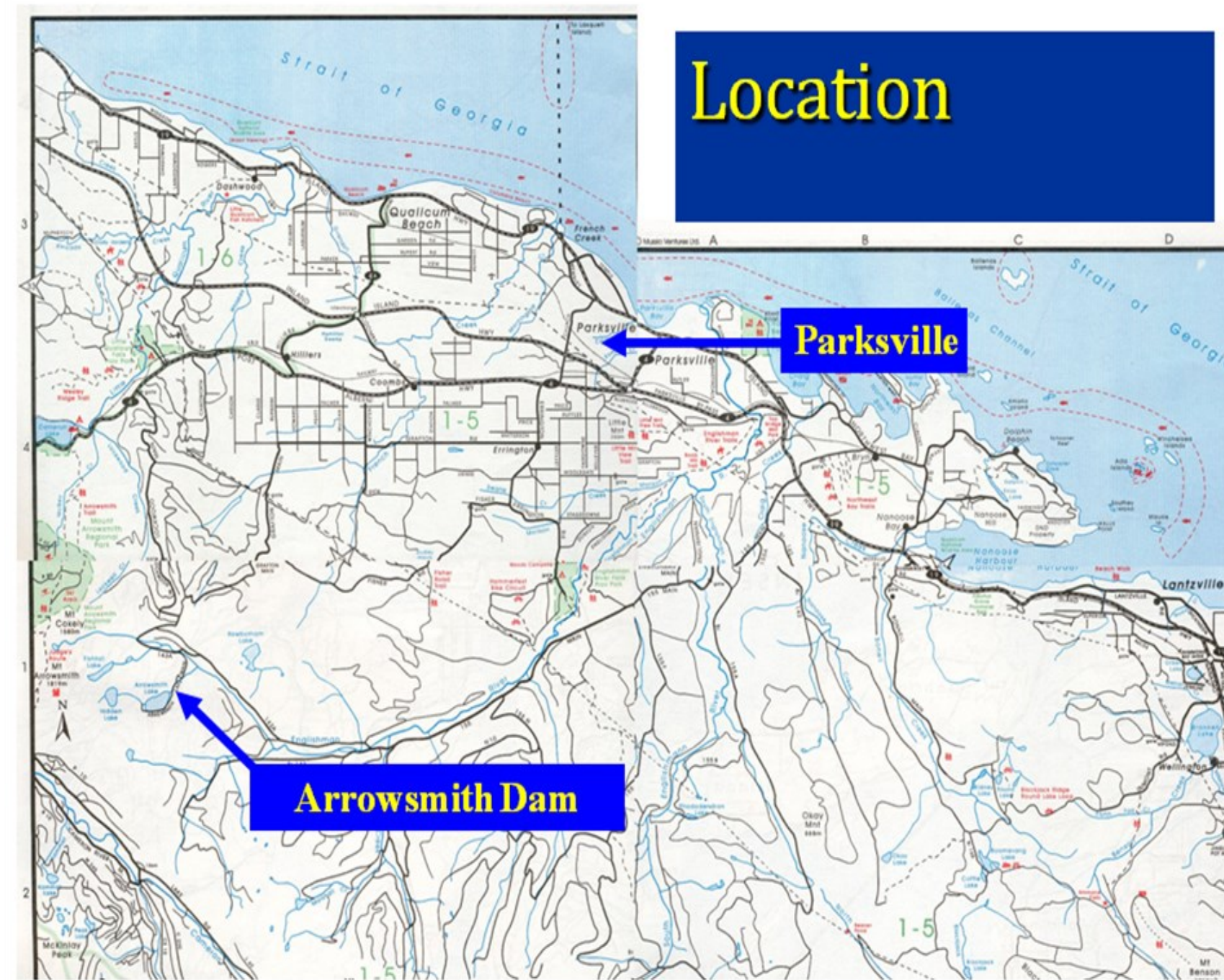
# Arrowsmith Lake Reservoir and Dam

The first phase of the AWS joint venture, the Arrowsmith Dam, was completed in 1999. The dam is located at the headwaters of the Englishman River about 34 km upstream of the mouth of the river and serves as a storage reservoir to allow augmentation of low summer flows.

The Arrowsmith Dam has been a great success for fish enhancement on the Englishman River (i.e. colder water being released in the summer and supplementary water contributions provided when river flow rates are low).



Arrowsmith Dam Construction 1998—1999



Activities in the watershed can affect river water quality and river flows and therefore affect our drinking water. This illustrates why protection of the Englishman River watershed, and in fact all watersheds, is so important. Both water conservation and environmental protection are important if we are to continue to have a healthy and sustainable water source.



Arrowsmith Lake Reservoir (April 2009) - looking north



Arrowsmith Dam (April 2009)



Arrowsmith Lake Reservoir (April 2009) - looking north

## Arrowsmith Dam – Design Criteria

### RESERVOIR STORAGE:

Water Level = 828.5 m  
Natural Water Level (Lake) = 816 m  
Low Water Level = 802 m

Additional Storage = 5 million cubic meters  
Total Storage = 9 million cubic meters

Approx. storage allocated for fisheries enhancement = 4.5 million cubic meters

The Arrowsmith Reservoir was designed for a 1:15 year drought return.

### FISHERIES FLOW TARGETS:

\*Mean Average Discharge (MAD) = 13.70 cubic meters per second

Critical Rearing Flow (1:79 Year occurrence) = 0.70 cubic meters per second (5.1 % MAD)

DFO & MoE Target – Preferred Rearing Flow = 1.13 cubic meters per second (8.2 % MAD)  
- Lower Reaches of E.R.

### Design Constraints of Dam – Fisheries Benefit (Summer Flow Augmentation of Dam)

Extreme Low Flow (1:14 year occurrence) = 1.24 cubic meters per second (9.05 % MAD)

Fair Rearing Flow = 1.36 cubic meters per second (10 % MAD)

Good Spawning and Rearing Flow = 2.05 cubic meters per second (15 % MAD)

The province issued a Provisional Operating Rule Based on maintaining 1.6 cubic meters per second

\*Englishman River Water Allocation Plan – MoE, April 1993

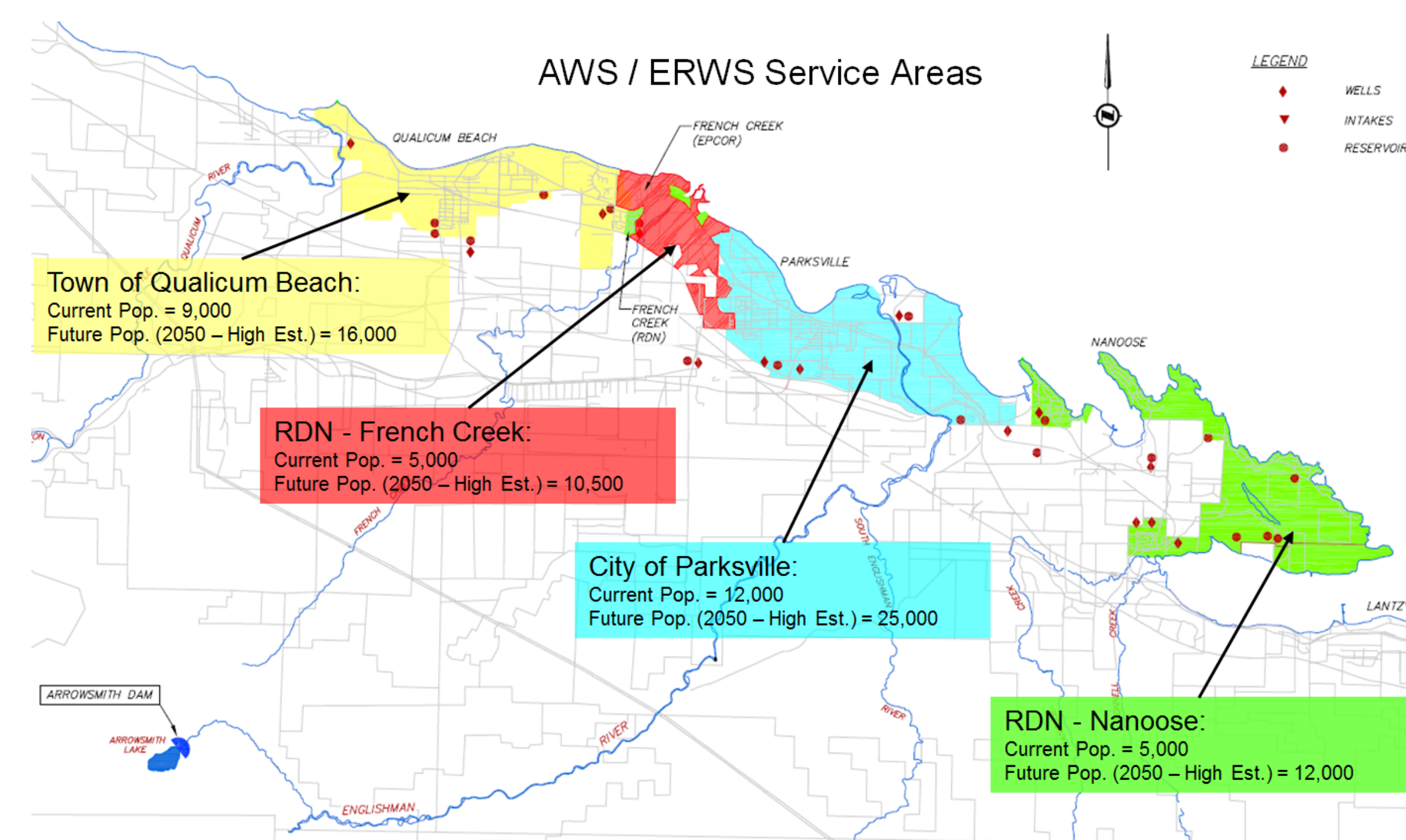
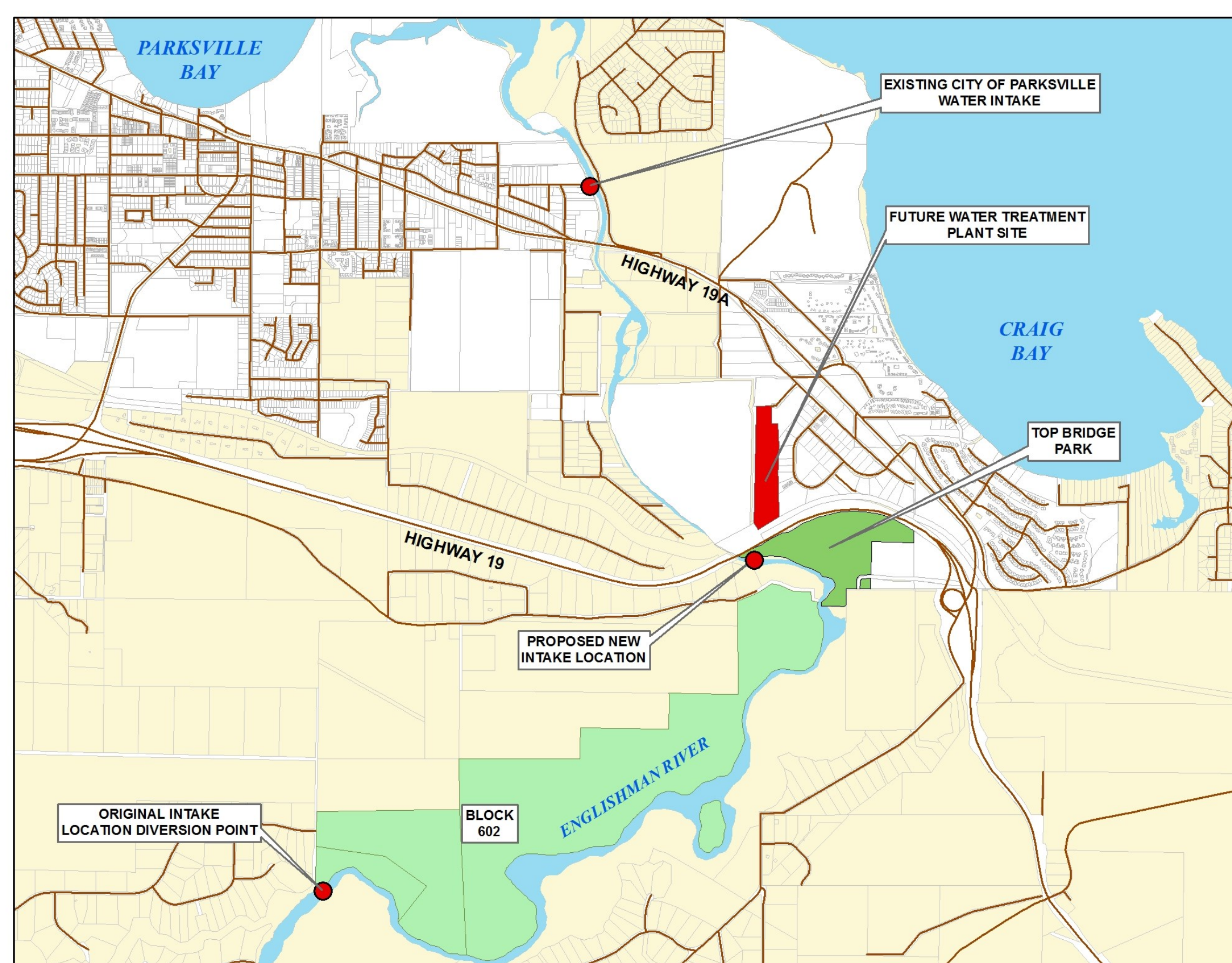


Arrowsmith Lake Reservoir

## From the dam to your home — how it works

The Arrowsmith Dam controls the release of water from the Arrowsmith Lake Reservoir to the Englishman River. There is no pipeline from the reservoir down the mountain to the bulk water service areas. The river serves as the conduit to convey the water from the reservoir to the point of extraction from the river, which is currently at the City of Parksville intake below Highway 19A in Parksville.

The location for the new proposed ERWS water intake is at the Highway 19 crossing of the Englishman River. This site is downstream of the originally proposed location at the confluence of the south Englishman River and the Englishman River.



Arrowsmith Water Service—Bulk Water Service Areas



Arrowsmith Lake Reservoir in Operation (Summer 2002)