



Creston Valley Alternate Water Supply Feasibility Study

Stakeholder Engagement Meeting

Presented by: Chris Gainham – Utility Services Manager RDCK

Matt Lozie P.Eng – Associated Engineering

Melanie Piorecky P.Ag. – Associated Environmental

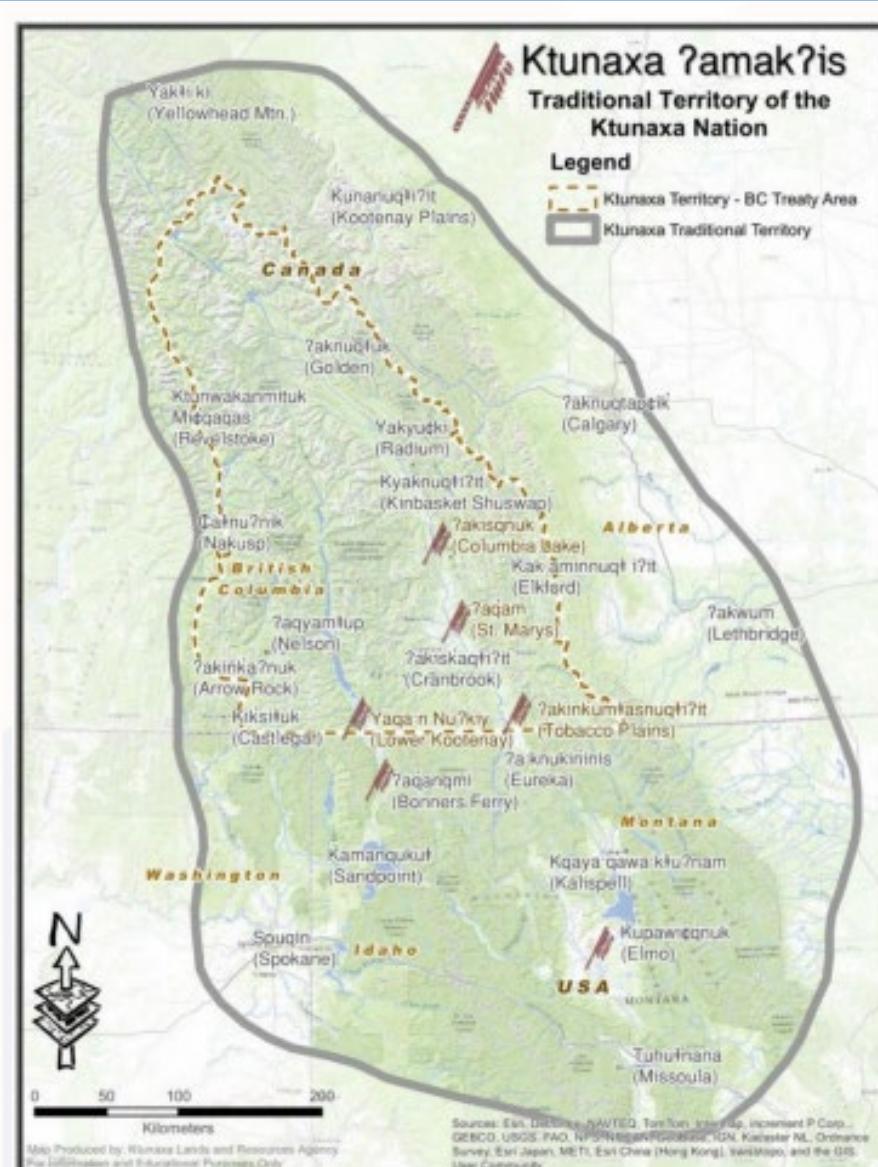
Lynne Betts – Facilitator

Date: November 7th, 2024



Outline/Meeting Agenda

- 1** Introduction and Territorial Acknowledgement
- 2** Project Purpose, Background, Scope and Drivers
- 3** Project Team
- 4** Technical Presentation – Agricultural Water Demand, Supply and Concerns
- 5** Infrastructure Design Concept
- 6** Questions



Traditional Territory

We acknowledge and respect the indigenous peoples within whose traditional lands we are meeting today.

Creston Valley is located on the unceded traditional territory of the Lower Kootenay Band, locally known as Yaqn Nu?kiy “where the rock stands”.

- Lower Kootenay Band is part of the Ktunaxa Nations.



Purpose of the Project

- The purpose of the project is to review and assess the feasibility of an alternative long-term water supply for the Creston Valley.
- The intent is to support agricultural water needs and to secure additional water supply for resilience against drought and water scarcity.
- The intent of the Stakeholder Meeting is to present the project and gather input from Agricultural Producers in the Valley.

- *Funding for this project was received through the Agricultural Water Infrastructure Program, which is funded by the Government of BC through the Ministry of Agriculture and Food and delivered by the Investment in Agriculture Foundation of BC.*
- *Additional grant funding is provided by the Community Works Grant funds.*



Some Background

At the June 21, 2023 Erickson Water Service Public Meeting we discussed Issues and Challenges related to Water Supply & Drought

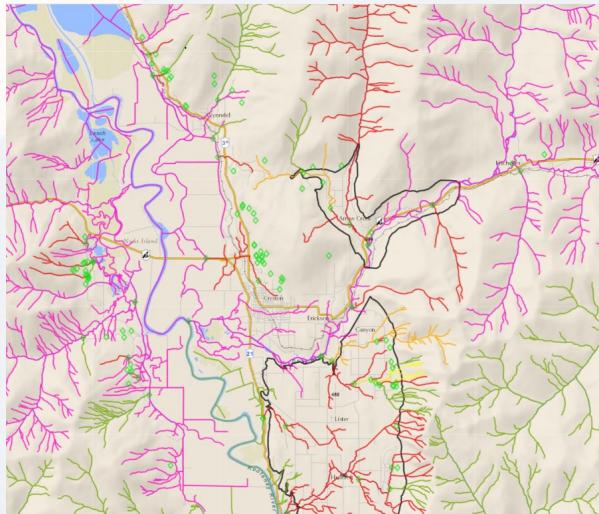
- Treatment plant has limited capacity and water licenses
- Arrow Creek flow can be low during hot dry weather
- Potential Economic and Environmental losses

Option	Pros	Cons	Actions
Increase Supply from Arrow Creek	- More supply most of the year	- Arrow Creek has "Fully Recorded" notation by the Province – likelihood of further significant allocation approval from Arrow or the Goat is unlikely - Very expensive treatment plant and pumping upgrades - Creek flows may not keep up with warm weather demands - Environmental Flow Needs: Low creek base flow impacting the proper functioning of the aquatic ecosystem	Current engineering study is addressing heating and energy efficiency upgrades.
Alternate Supply	- More supply potentially all year	- Very expensive treatment plant, pumping, and distribution upgrades - Groundwater supply is a concern in the area - Supply from Goat River or tributaries would be harmful to flow levels	2019 Erickson Agricultural Water Demand Study  This Study
Water Demand Management	- Possibly the least expensive option	- Potentially limited demand reduction - Likely requires universal metering	Erickson Water Metering Project



Project Drivers

- Water scarcity concerns in the Goat River watershed – Including Arrow Creek
 - Environmental Flow Needs
 - Drought and climate resilience
 - Provincial approval for future significant allocation from Goat or tributaries is unlikely
- Drinking Water Conservation
 - Currently treated drinking water from the Arrow Creek WTP is used to irrigate crops



Provincial Water Allocation Notations



Project Team and Stakeholders



Uli Wolf – GM Environmental Services
Chris Gainham – Manager of Utility Services (Project Sponsor)
Eileen Senyk – Water Services Liaison (Project Manager)
Alex Divlakovski – Manager of Water Operations

Lynne Betts - Facilitator
Engagement
and Communications



Matt Lozie P.Eng – Project Manager
Melanie Piorecky P.Ag. - Agrologist

Internal Stakeholders

Area Directors for Electoral Areas A, B and C
RDCK Staff – Development Services and
Sustainability

Government Partners

Lower Kootenay Band (Yaqan Nukiy), the Ministry
of Agriculture, Ministry of Water, Lands &
Resource Stewardship and the Town of Creston

External Stakeholders

Water User Groups in the Creston Valley
Improvement and Diking Districts
Agricultural Sector



What's In-Scope and Out of Scope

In-Scope

- Define water supply areas that are currently at risk and may require a new water supply in the near future.
- Identify the interested parties, water purveyors, and First Nations governments with interests and rights in each area of interest.
- Summarize current agricultural land uses and how agriculture in the areas of interest could change in response to climate change, market forces, and food trends, based on available information.
- Establish and define future condition scenarios to form the basis of predictive water demand.
- Explore options to centralize water supply on the Kootenay River that would reduce pressure from over-allocated waterbodies and at-risk supply areas.
- Identify potential intake and water conveyance options for the proposed Kootenay River water supply system

Out of Scope

- This project is a desktop screening level study of options for irrigation water supply for agriculture in the Creston Valley.
- Detailed study of any water sources is out of scope. Identification of water sources for uses other than agriculture is also out of scope.



Associated
Environmental



Platinum
member



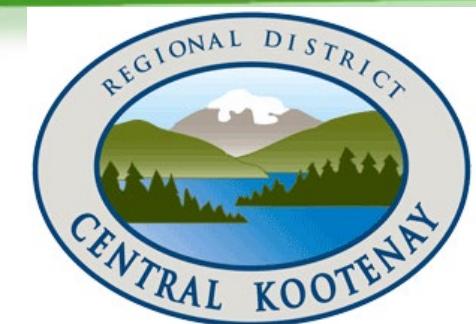
Creston Valley Alternative Water Supply

High-level Feasibility Study

Melanie Piorecky, P. Ag.

Matt Lozie, P.Eng.

November 7, 2024



Background

- Water demand > than water supply
- Climate change = drought, unpredictable, reduced snowpack, longer growing season
- Intermingling supply



Look at a centralized water supply to reduce pressure from over-allocated and at-risk supply areas



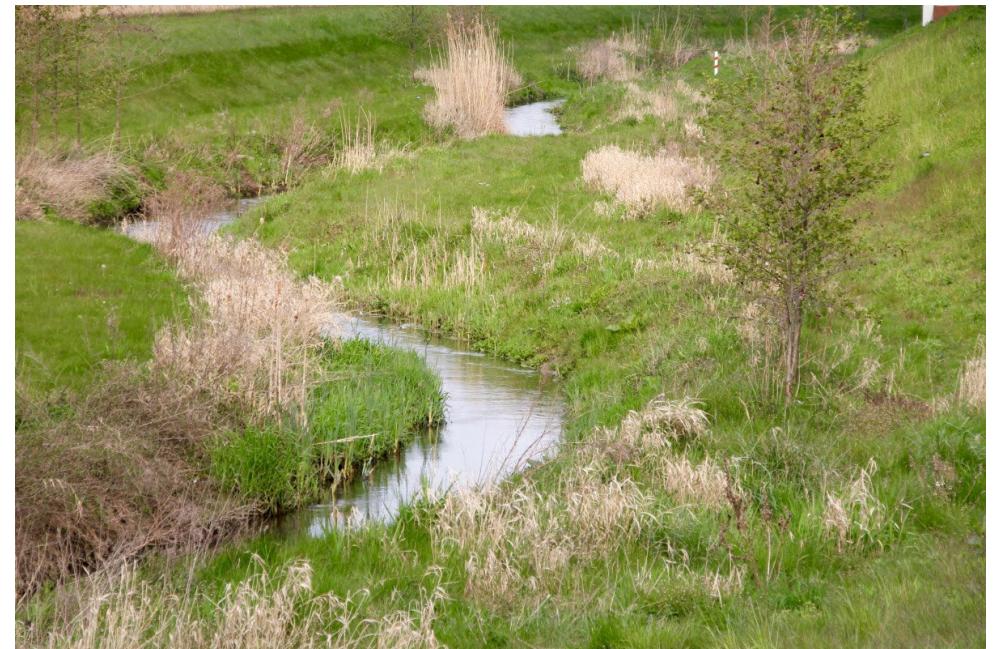
Steps Taken

What is current agricultural water use?

Crops types + soils + climate + total areas
= Irrigation demand

What is supply?

Sources, allocation, issues



Information Sources

Agricultural land use inventory – crop types

Agricultural Water Demand Model – by crop type

Water purveyor data, past reports

Yaqan Nu?kiy

In the works

Creston Valley Drought Assessment - BC WLRS

Creston Valley Aquifer Vulnerability Assessment – Living Lakes



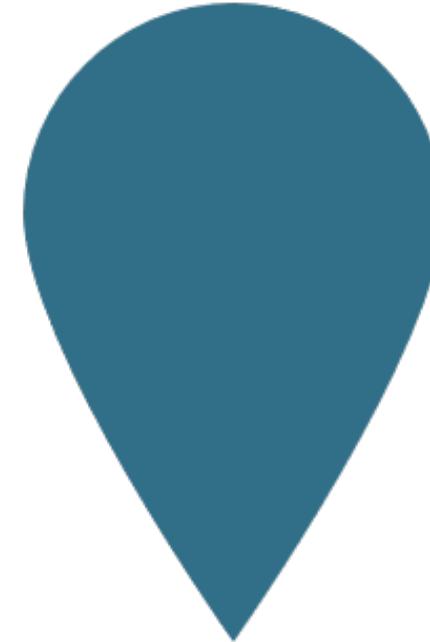
Agricultural Water Use in the Region

- Fruit trees, grapes, berries
- Forage
- Cereal and oil crops
- Grass/turf
- Vegetables
- “Cultivated”



Variation in Agricultural Crop Demands

- Turf
- Hay/Forage
- Fruit trees
- Vegetables
- Berry
- Corn, cereal and oil crops
- Grapes



Variation in Agricultural Crop Demands

Agriculture	Average mm
Alfalfa	694
Apple	717
Berry	651
Cherry	759
Corn	468
Forage	892
Fruit	822
Grape	427
Nursery	859
Turf Farm	966
Vegetable	706



How can you be more efficient with water use?

Water Supply in the Region

Arrow Creek*

Duck Creek

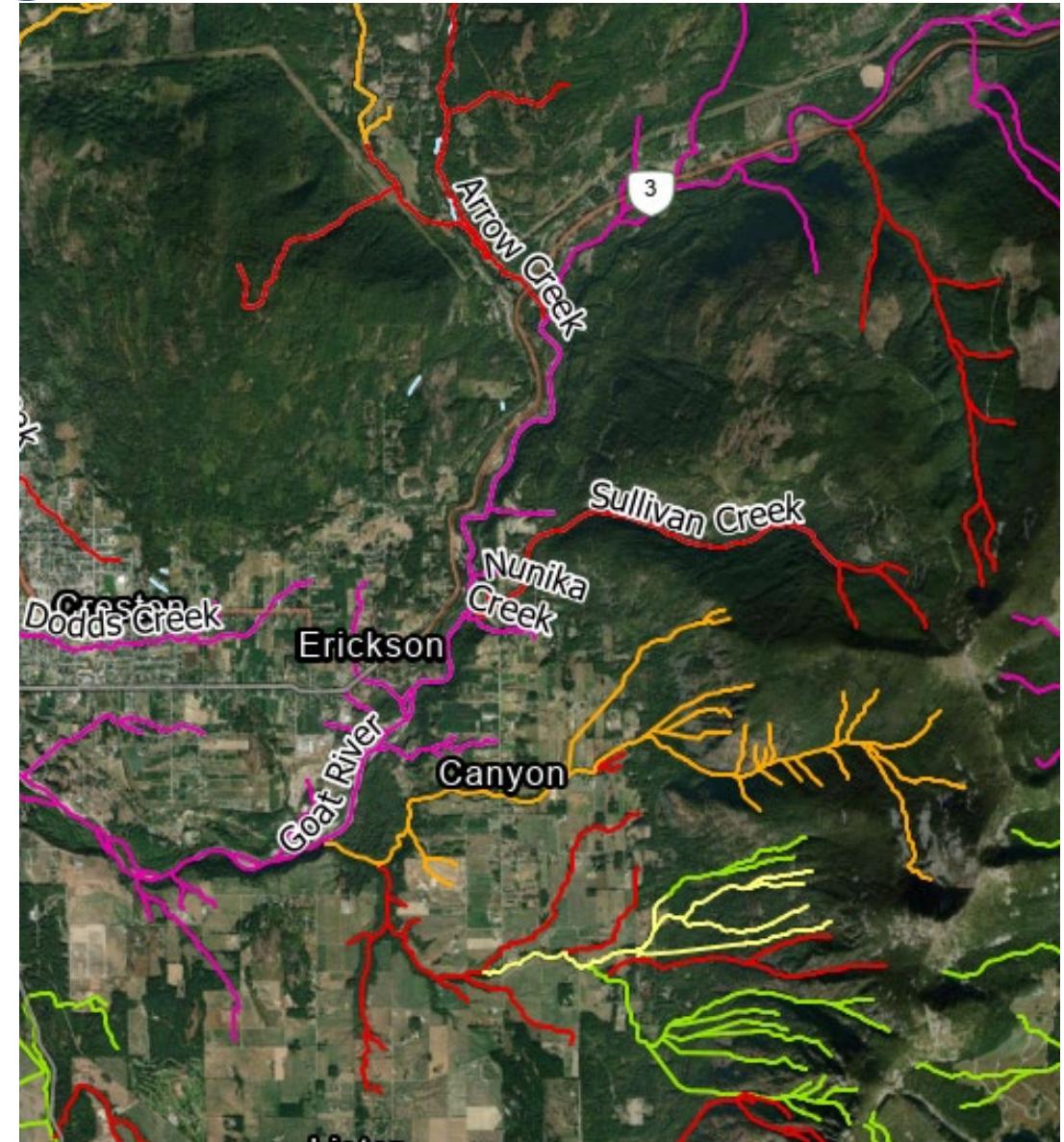
Floyd Creek

Orde Creek

South Rykerts Creek

Groundwater Wells

Goat River Watershed



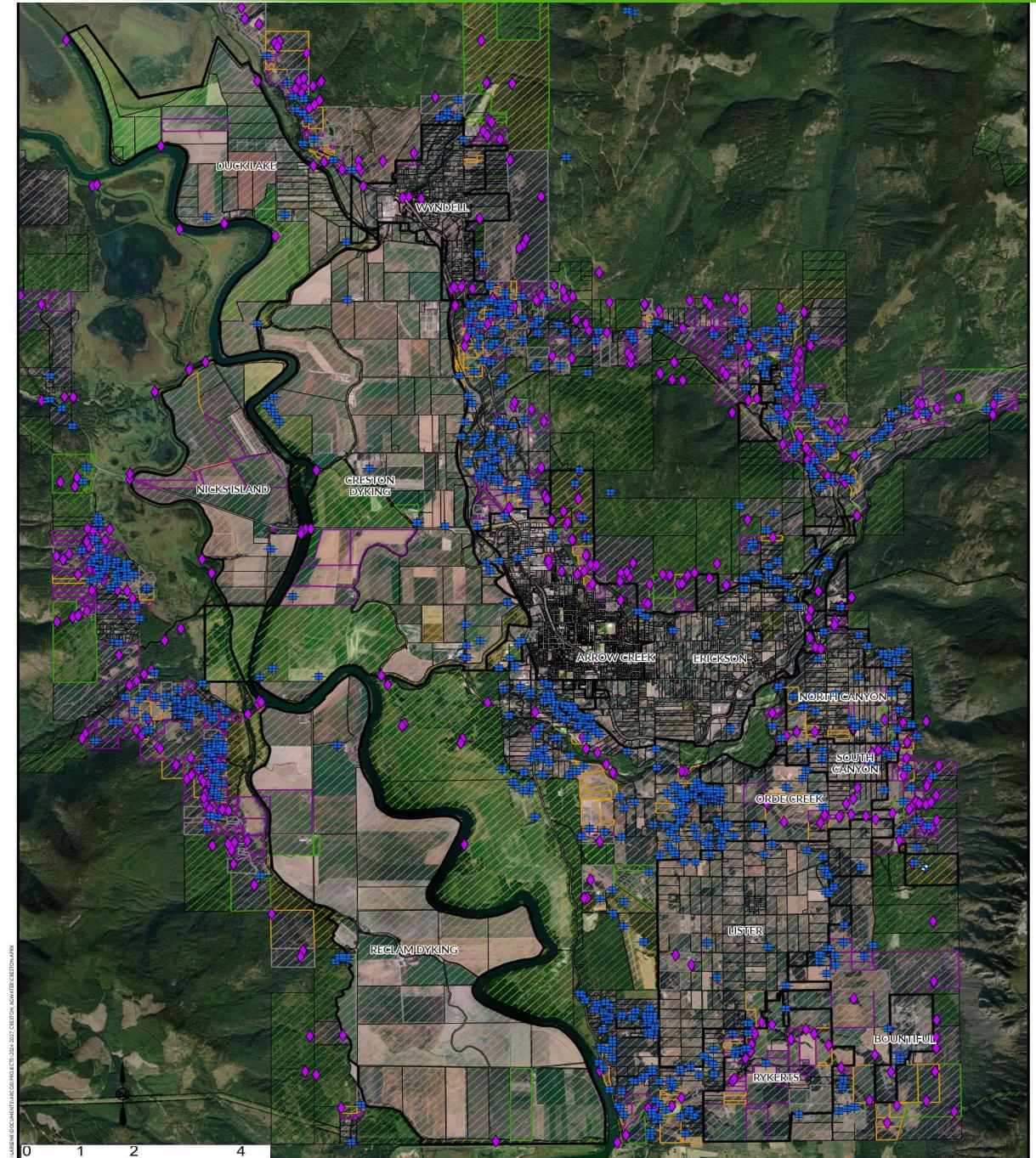
Water Supply in the Region

Licensed 

Unlicensed 

Well Diversion 

Surface water diversion 



Water Supply Concerns

- South Canyon Imp. Dist. (Floyd Creek) – concerns wells pulling from surface flows
- North Canyon Imp. Dist. (groundwater) – flow management plan in place
- Lister Water System (groundwater) – aging infrastructure
- Arrow Creek Water Treatment – major capacity concerns
- Goat River Watershed – groundwater connectivity, stress to tributaries, not meeting environmental flow needs



Questions?

Agricultural Water Demand

- Based on 4.5 USGPM/Acre from BC Irrigation Management Guide Table 3.3

Table 3.3 Estimated Peak Irrigation Flow Rate Requirements for B.C. Locations ^{1,2}					
Location	Flow Rate [US gpm/acre] ³	Location	Flow Rate [US gpm/acre] ³	Location	Flow Rate [US gpm/acre] ³
Cloverdale	4.0	Langley	4.0	Sumas	4.5
Comox	5.0	Lillooet	7.5	Summerland	6.5
Creston	4.5	Lister	5.0	Terrace	5.5
Dawson Creek	4.0	Lumby	5.5	Vancouver	4.5



Agricultural Water Demand

- Future Agricultural Water Demand under full build out scenario
 - Within existing system boundaries
 - Excluded “Low or No” Irrigation land
 - Summer peak day flow (Maximum Day Demand)
 - ~ 2400 L/s (38000 USGPM) allocated demand
 - ~ 1800 L/s (28500 USGPM) actual demand



Kootenay River Source

- Summer flows typically above 100 cms
- Required agricultural demand below 2 cms
- Transborder river subject to flow requirements
- Locate intake upstream of the Goat River confluence
- Water quality is typically good. Low suspended solids / turbidity.



Questions?

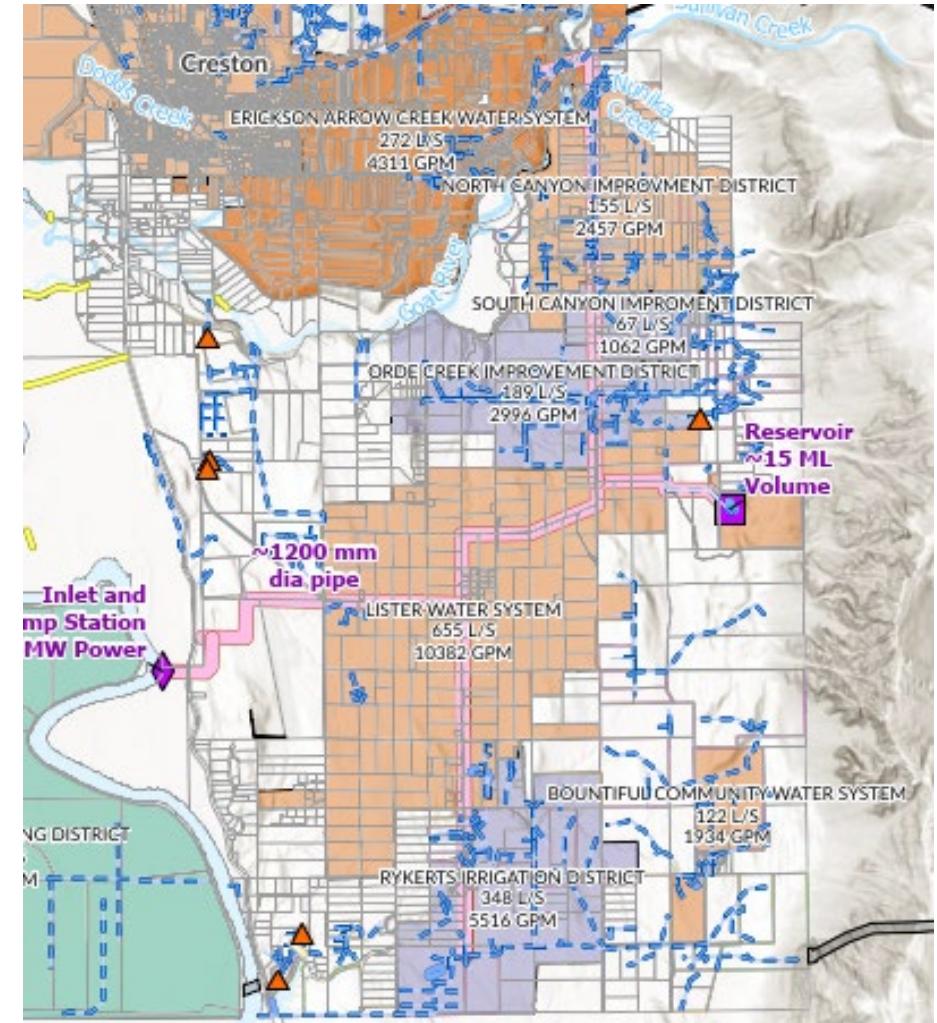
Kootenay River Pump Station

- Pump station located on Kootenay River bank
- Pump from 535m up to reservoir at 720m elevation
- Reservoir for balancing daily water use fluctuations
- Could be phased



Agricultural Transmission System

- Large diameter transmission main to convey water
- Most direct route chosen
- New piping required for irrigation water
- Maintain existing piping for potable drinking water
- Phased approach



Treatment

- BC Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture
- Not a potable system, so not IHA jurisdiction
- Small amount of disinfection to limit bacteriological regrowth in pipelines
- Some river intakes use sedimentation ponds



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Nest Steps

- Final Engineering Report Submission – December 31, 2024
- Stay Engaged – Visit engage.rdck.ca and navigate to the study page:
 - Project Survey
 - Staff Contacts

Creston Valley Alternate Water Supply Feasibility Study

The purpose of this project is to review the feasibility of alternative long-term water supply for agriculture in the Creston Valley. The intent is to support agriculture and to provide additional water supply for drought resilience. In 2013, the Regional District adopted a Creston Valley Conservation Plan. Presently, Creston is drawing water from Arrow Creek to irrigate agriculture in the Creston Valley. This study will examine alternative water sources and infrastructure required for crop irrigation. Helping to sustain agriculture in the Creston Valley. By securing a separate water source for irrigation, the project also promotes drinking water conservation, preserving Arrow Creek's limited water resources, and alleviating pressure on the sensitive Coast River watershed.

Funding Source:
Funding for this project was received through the Agricultural Water Infrastructure Program, which is funded by the Government of BC through the Ministry of Agriculture and Food and delivered by the Investment Agriculture Foundation of BC.

Project Objectives:
The main project objectives in securing a sustainable source of water for agriculture in the Creston Valley, thereby decreasing the pressure on the Arrow Creek water supply and the Coast River watershed. The goals of the project are as follows:

- Define water supply areas that are currently arid and may require a new water supply in the near future.
- Identify the interested parties, water users, and First Nations governments with interests, and rights in each area of interest.
- Study the potential for alternative water sources and infrastructure to support agriculture in the area, including changes to precipitation and hydrological regimes, market forces, and flood trends, based on available information.
- Develop feasible centralized water supply on the Kootenay River that could reduce a pressure from over allocated water bodies and delineate supply areas.
- Identify potential infrastructure requirements including intake treatments, storage and water conveyance options for a proposed Kootenay River water supply system. The study will present and evaluate these infrastructure options and provide high-level cost estimates for each.
- Assess agricultural water use and water needs in the Creston Valley and the potential benefits of future agricultural water use in increasing agricultural productivity and water use efficiency.

Understanding your agricultural water use and needs in the Creston Valley is important for this project and your feedback is valuable. Please take a few moments to fill out the survey and have your voice heard. Your responses are important to us, and will help determine the size and scale of infrastructure that is needed and that residents are willing to support.



[Survey](#)

Current and Future Agricultural Use
The Regional District of Central Kootenay is assessing the feasibility of providing an alternative long-term water supply for agricultural needs in the Creston Valley. You are invited to complete this survey which will help us understand future agricultural water demand in the Creston Valley.

Who's Listening

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Questions?