



# Comox Valley Water Treatment Project

## Frequently Asked Questions

The Comox Valley Regional District (CVRD) is planning to construct a new water treatment system to provide Comox Valley residents with a secure supply of reliable, high quality drinking water for decades to come.

Below are some questions and answers about this important project.

### Why is a new water treatment system needed?

The Comox Valley Water System, which provides drinking water to 45,000 residents, is not compliant with the provincial surface water treatment objectives guideline. As a result, the current operating permit, issued by Island Health, requires a new water filtration plant to be constructed.

The new system will eliminate the need for turbidity-related boil water notices and remove the risk of viruses and bacteria in our drinking water.

### Why now? What has changed?

The history of water quality issues in the Comox Valley dates back to before 2005, when Island Health, (then VIHA), ordered the CVRD to complete a Watershed Risk Assessment, which identified major risks to the Comox Lake water source.

In 2013, after two years of continuous water quality monitoring and sampling, Island Health approved a plan to build a deep-water intake and ultraviolet (UV) treatment, deferring its earlier requirement of installing a filtration system. However, that deferral was lost in 2015 after numerous extreme rain events caused several Comox Lake tributaries to experience high erosion, carrying large amounts of sediment into the lake, and triggering the need for boil water notices.

### What is turbidity and why does it result in boil water notices?

During high rainfall events, runoff from the rivers and tributaries that feed Comox Lake create cloudiness, or turbidity, in the water. Elevated turbidity levels can interfere with the chlorination of the water and increase the risk of bacteria, requiring boil water notices be issued to ensure safe drinking water.



## Is the Comox Valley system being held to a different standard than other communities?

The surface water treatment objectives are applied consistently across BC. All other operators who exceed 1 NTU are put on boil water notices unless they have ultra-violet treatment and/or filtration. The turbidity limit of 1 NTU is consistent across Canada and all countries studied, except for Australia whose requirement is more stringent at 0.2 NTU.

## What are BC's surface water treatment standards?

The Province of British Columbia's surface water treatment guideline has five objectives for safe drinking water:

1. Inactivation of viruses
2. Protection against parasites
3. Two treatment processes
4. Less than or equal to 1 nephelometric turbidity unit (NTU)
5. No detectable E. Coli, fecal coliform and total coliform in the treated water

## When will the new water treatment plant be complete?

It is expected that construction will begin in late 2019 and the new system will be operational in 2021.

## What has happened on the project so far?

Between November 2015 and fall 2016, the CVRD undertook extensive analysis of available filtration options. Three public workshops were also held during this time period with community stakeholders to review the water intake, treatment and conveyance options. This study phase concluded with the delivery of the Project Definition Report (PDR), which outlined the preliminary project scope.

In early 2017, the CVRD hired Opus International to undertake further analysis of capital costs, review the design-build (DB) approach, and confirm the project's parameters and scope. This process recently concluded with presentation of the Indicative Design Report in September 2017, which included detailed analysis of each piece of the scope of the project, refined project drawings and revised cost estimates.



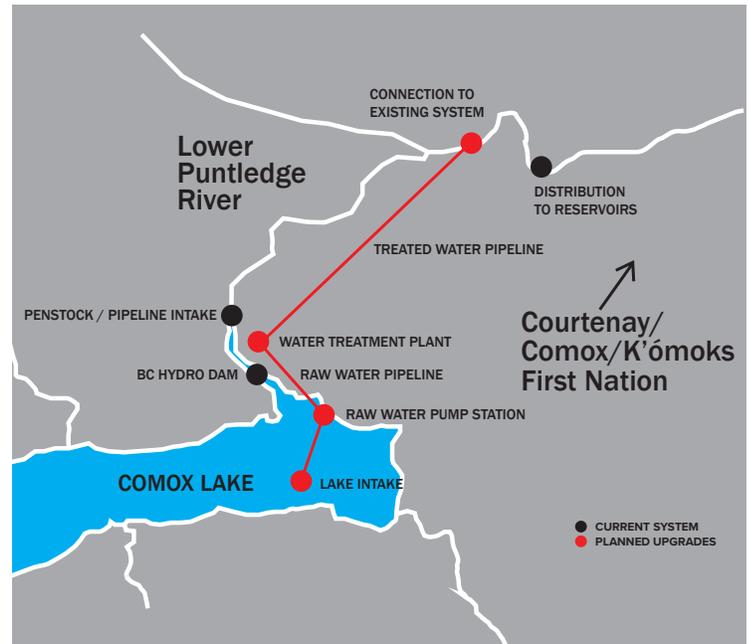
## What will the new system include?

The new treatment plant will use filtration, ultra-violet treatment and chlorination to remove the risk of bacteria, parasites and viruses from the water and eliminate the need for turbidity related boil water notices.

The new water treatment system will consist of a new:

- Lake intake
- Raw-water pumping station near the intake and raw water pipeline
- Water Treatment Plant including filtration and disinfection
- Treated water pipeline from the Water Treatment Plant to the water distribution system.

The map to the right highlights the current system (black dots) and the planned upgrades (red dots).



*Components of new system*

## What are the next steps?

The project will now be entering the Pre-Construction Phase. Opus International will continue its work to:

1. develop technical specifications for all equipment and infrastructure
2. draft project agreements for the design-build contract
3. obtain required permits
4. undertake RFQ/RFP processes to select preferred design-build team

In addition, the CVRD will be working to secure significant infrastructure grants from the provincial and federal governments to fund at least 50% of the project.



## How much will it cost to build the new water treatment plant?

The project is currently estimated to cost \$110 million.

## How will it be paid for?

The CVRD is seeking significant grant funding from the federal and provincial governments to reduce the total project costs. However, there will still be a cost the CVRD must cover. The Comox Valley Water System currently holds reserves of \$26 million and the CVRD plans to borrow up to \$29 million over a maximum of 25 years to finance its share of the construction costs for the new system. The public approved the borrowing of the \$29 million through an Alternative Approval Process in March 2018.

## How much will this cost me as a ratepayer?

The cost of borrowing up to \$29 million will mean an increase in bulk water rates for users of the Comox Valley Water System. This increase was forecasted within the approved bulk water rates schedule for coming years. There be will no further increases beyond what has already been forecast. It is estimated that this could add \$86 to the average annual tax bill of households across the region, and more for business and industrial users.

## Doesn't the CVRD require taxpayers' permission to borrow?

The CVRD used the Alternative Approval Process to request permission from residents to borrow up to a maximum of \$29 million.

All residents of the Comox Valley were eligible to participate, except residents of Cumberland.

Residents in opposition to the borrowing were able to complete an electoral response form. From February 1 - March 16 the CVRD received 31 opposing responses. As this was fewer than 10% of the electorate, the CVRD may proceed with borrowing the necessary funds.

### Construction 2019-2021

\$55 M Grants (50%)

+

\$29 M Borrowing (26.2%)

+

\$26 M Reserves (23.8%)

=

**Revised Total Estimated Cost:  
\$110 M\***

\* Revised Capital Cost Estimate is far more detailed than previous estimate: Class B estimate, with contingency of 20%

Paying for a new system



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## Is Comox Lake a safe source of drinking water given the recreational and other activities that occur in and around the watershed?

Ensuring safe drinking water requires two important steps: treating the water provided to residents and protecting the water at the source.

The area of land that drains into Comox Lake is approximately 461 square kilometers and includes many smaller, sub-watersheds. The Comox Lake watershed's health depends on activities in the area, as well as the natural composition of the land, including vegetation, wildlife and weather patterns.

In 2016, the CVRD completed the Comox Lake Watershed Protection Plan (WPP) to guide management of the Comox Lake Watershed for the long-term protection of drinking water. Implementation of the WPP requires a collaborative effort by all stakeholders. It identifies 29 source water risks and includes 54 recommendations for risk mitigation. High priority actions, such as water quality monitoring, turbidity source studies, hydrodynamic modeling, and education and outreach, are being implemented now.

Watershed Protection Plan achievements to date include: water quality monitoring, education, hydrodynamic modelling, emergency preparedness and stakeholder collaboration.

A major challenge for the Comox Lake watershed is that it is largely privately-owned. Most of the watershed falls under the Private Managed Forest Land Act, and the lake itself is a reservoir controlled by BC Hydro for hydroelectric power generation, maintaining fish flows and flood mitigation. It is also a popular recreation destination for swimming, boating, fishing and hiking.

The water quality in Comox Lake is generally excellent with the exception of during major rain events. The new water treatment plant will be able to treat the water effectively with filtration during those events in the future.

**Info about the new water treatment plant is available at:**

Website: [comoxvalleyrd.ca/watertreatment](http://comoxvalleyrd.ca/watertreatment) or [connectcvrd.ca/watertreatment](http://connectcvrd.ca/watertreatment)

Email: [engineeringervices@comoxvalleyrd.ca](mailto:engineeringervices@comoxvalleyrd.ca)

Phone: **250-334-6000** to talk with a member of the project team

