



WHAT WE HEARD:

76% of survey respondents favour minimizing the use of chemicals in the water treatment process. About 55% of respondents emphasized keeping costs down. At least 50% of respondents were in favour of reducing energy use and minimizing the amount of waste water generated in the treatment process.

Sustainability features

- The process building will be naturally lit by skylights and large windows.
- Roof mounted solar water heating will provide hot water for equipment cleaning and in washrooms.
- Roof water will be collected for use in toilet flushing and irrigation.
- A green wall will provide screening of the existing building.

Landscaping

The site will provide a living demonstration of 'low impact development' with an emphasis on showing current best practice in stormwater management and water conservation:

- Existing trees will be retained as far as possible.
- The grass lawn will provide a dry detention area for a 1:10 or 1:100 year storm.
- Parking areas will be used to showcase various types of pervious paving.
- Areas of impervious paving will run off into demonstration rain gardens or swales.
- Changing water levels in the stormwater pool fronting the operations building will be used to educate visitors about seasonal rainfall patterns.
- A water conservation demonstration area will showcase best practices in landscape design and irrigation.
- The walkway between the operations and engineering buildings will demonstrate how urban street trees can be integrated into hardscapes and will showcase planting that tolerates little or no watering.

Site layout

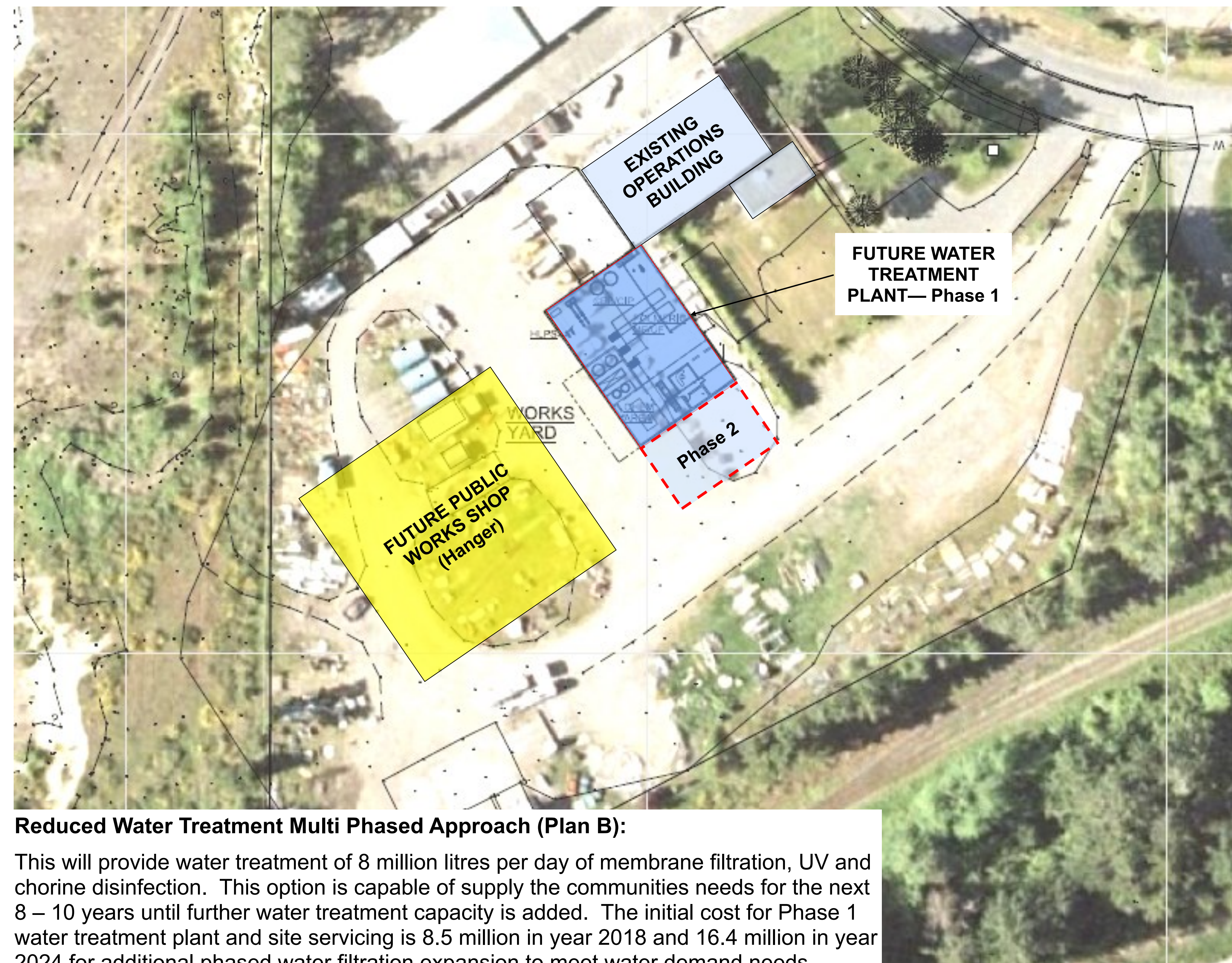
The water treatment facility will be located at the existing City Works Yard on Herring Gull Way in Parksville. The existing engineering and shop building located northeast of the site will remain. With the Engineering Department moving to City Hall, one main building is required:

- Larger process building which will house the treatment equipment

Together with landscaping elements, the building will form the public face of the site.

Other City functions, including a new shop, and vehicle washing / fuelling areas will be located to the rear of the site, along with yard storage, access and parking. (This part of the site redevelopment will be funded from a separate City budget and are not included in the project cost and funding estimates.)

A fence and security gates will separate the public and operational parts of the site. Locating parking south of the process building will enable future expansion of the process building (if required) to accommodate alternative treatment technologies should these become feasible.



Reduced Water Treatment Multi Phased Approach (Plan B):

This will provide water treatment of 8 million litres per day of membrane filtration, UV and chlorine disinfection. This option is capable of supply the communities needs for the next 8 – 10 years until further water treatment capacity is added. The initial cost for Phase 1 water treatment plant and site servicing is 8.5 million in year 2018 and 16.4 million in year 2024 for additional phased water filtration expansion to meet water demand needs.

Phase 1 — Water treatment Plant and Site Servicing (Year 2018)	\$ 8.5 million
Phase 2 — Upgrade WTP to 24 ML/d (Year 2024)	\$ 16.4 million
Total Water Treatment Plant (Phase 1 & 2)	\$ 24.9 million

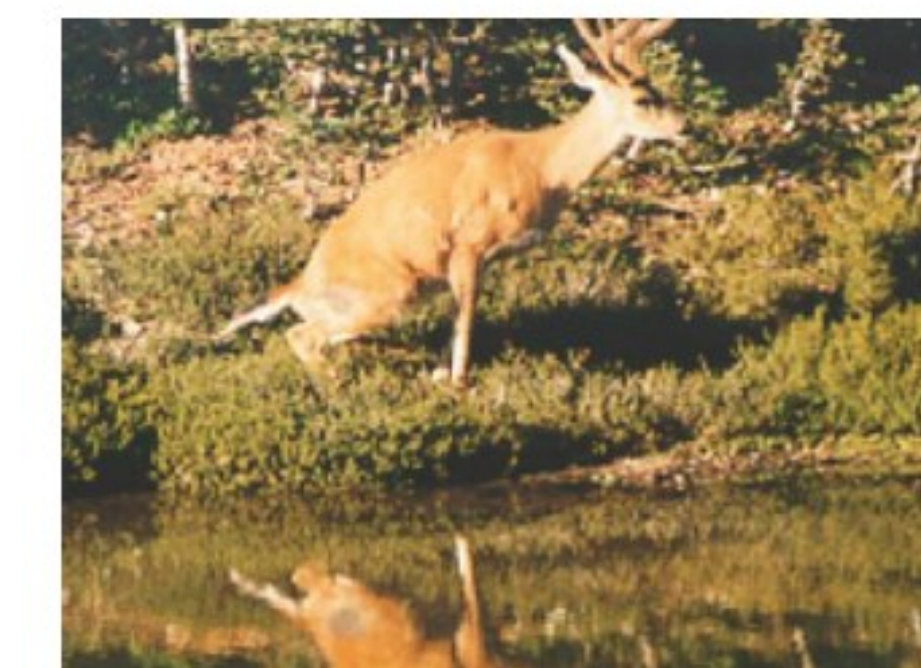


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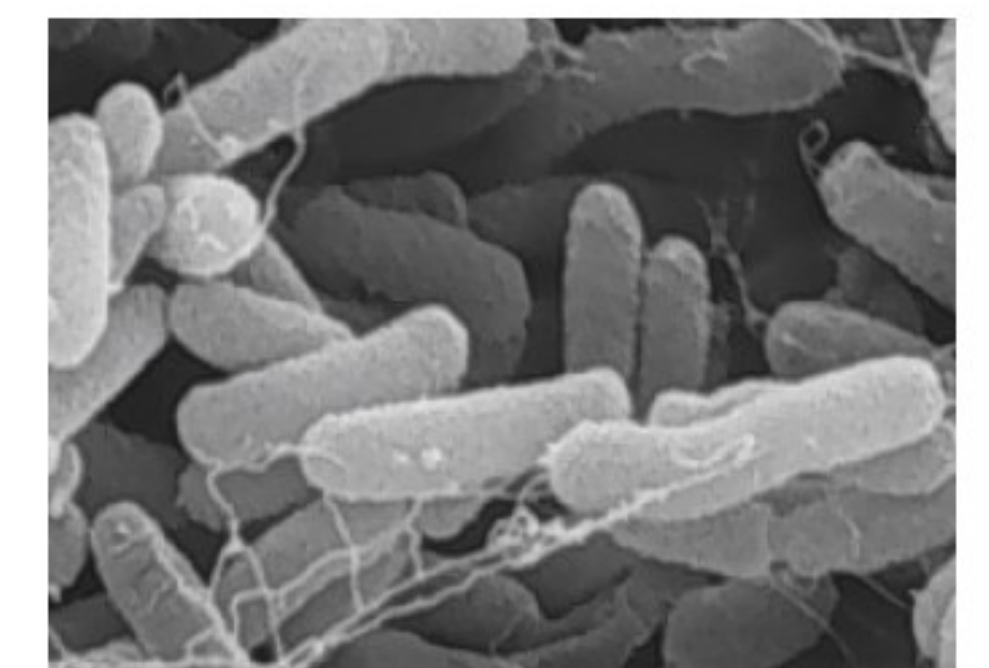
Most survey respondents prefer a basic water treatment building that reflects sustainable design principles. More than 50% of respondents support the use of the site for interpretation and education about water conservation and water treatment, provided that this does not add significant cost. The Community Working Group supported the use of timber elements in the structure and finish of the new buildings to reflect the setting of the Englishman River catchment, as well as the historic importance of forestry to the local economy.

Why treat water?

- To protect public health.
- To improve aesthetics.
- Island Health requires it.



Even the most pristine of water sources can become contaminated.



Disease outbreaks elsewhere (such as at Walkerton ONT, where 7 people died and 2,300 fell ill as a result of drinking untreated water) have prompted stricter water treatment requirements.

Water is treated to remove:

- **Life-threatening viruses, bacteria and E-coli** – Older people, those with weaker immune systems and children are particularly vulnerable to viruses, bacteria and e-coli.
- **Colour** – Chlorine used in disinfection can react with colour, creating disinfection by-products (which are suspected carcinogens). These need to be removed. If colour is not removed, people could opt for untreated sources which look clean, but which could be dangerous to their health.

Issue	Treatment technologies
<ul style="list-style-type: none"> • Viruses, bacteria and E-coli • Turbidity (muddy water) 	Filter and disinfect water with UV light, and add a small amount of chlorine.
<ul style="list-style-type: none"> • Colour • Disinfection by-products 	Three processes were tested: <ol style="list-style-type: none"> 1. Filtration membranes and the addition of a coagulant (alum based); or 2. Filtration membranes and nanofiltration; or 3. Ion exchange (like a home water softener).