

Welcome! A'siém nu schala'cha

Thank you for taking the time to learn more about options for wastewater treatment and resource recovery on the Westside.



WESTSIDE SOLUTIONS

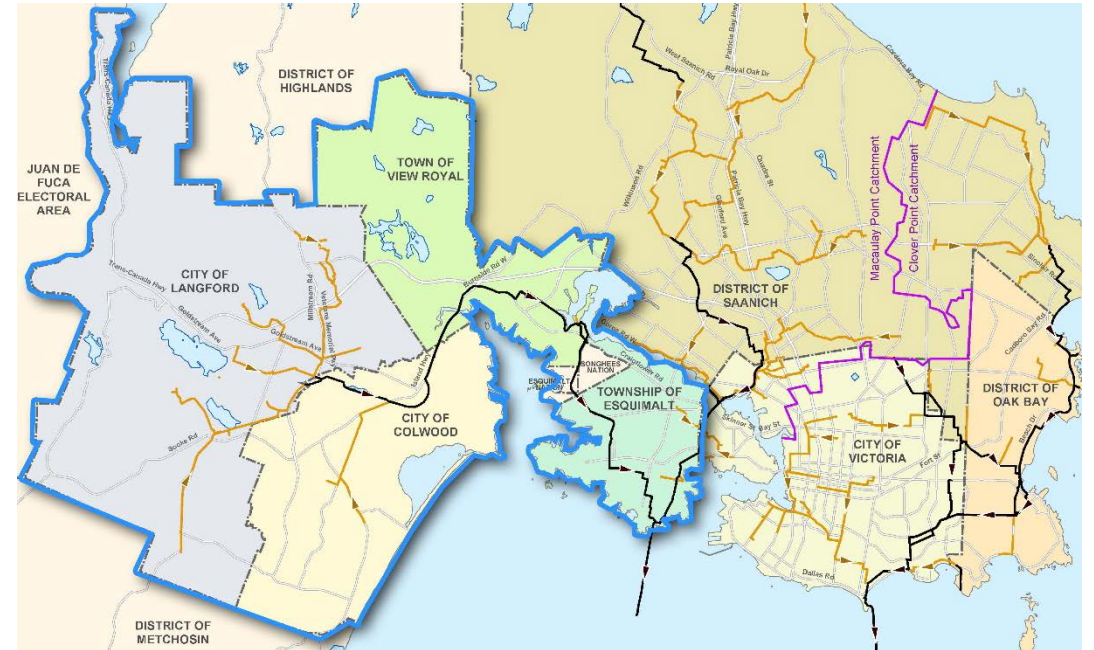
Westside Wastewater Treatment & Resource Recovery



What is Westside Solutions?

Colwood, Langford, View Royal, Esquimalt and Songhees Nation are working together to identify wastewater treatment and resource recovery solutions that meet our unique community needs in a proactive and timely way.

The Westside Wastewater and Resource Recovery Select Committee is an official sub-committee of the Capital Regional District.



Sewage treatment: what features are most important to you?



What's possible? Check out examples from other communities.

The examples you will see today show a wide range of settings, sizes, treatment methods and resource recovery options.



What aspects would you like to explore for sewage treatment on the Westside?



1. Pinewater Creek Wastewater Treatment Plant

Calgary, Alberta



Size: 137.59 hectare site (340 acres)

Population Served: 250,000 (build out 1,750,000)

Full Project Cost: \$430 million

- LEED Gold Certified
- Tertiary Treatment
- 5,500 square metres of green roofs
- Bio-gas used to heat operations
- Provision of bio-solids to farmers and ranchers
- Site designed to blend with neighbourhood

Did you know?

It is important to think about what goes down your drains.

Source control is about reducing contaminants before they enter the sewer system rather than treating them after they have been mixed with other wastes.

2. Dockside Green Wastewater Treatment Plant

Victoria, BC



Size: 11 hectare development site (29 acres)
Population Served: 300 residents and 16 businesses
Treatment Plant Cost: \$4 million

- Tertiary Treatment
- Reclaimed water exceeds potable water requirements
- Reclaimed water used for flushing toilets and irrigation
- Saves 113 million litres of drinking water per year
- Biosolids are dewatered and composted on Vancouver Island for use as a soil supplement.

Did you know?

Preliminary treatment removes coarse solids like gravel, rags, plastics and other garbage which are then sent to the landfill.

3. Lighthouse Point Water Reclamation Facility

Blaine, Washington



Size: 0.4 hectare facility (1 acre)
Population Served: 5,000 people
Treatment Plant Cost: \$34 million

- Advanced treatment plant with high quality effluent
- Biosolids recycled for use as fertilizer for grass fields
- Reclaimed water used for golf course, street sweeping
- Integrated into public park, pedestrian bridge to beach

Did you know?

Primary treatment screens larger debris and performs some rudimentary treatment to remove crude solids like grease, oil and fat.

4. LOTT Regional Services & Budd Inlet Treatment Plant

Olympia, WA



Size: 5.7 hectare facility (14 acres)
Population Served: 108,000 people
Treatment Plant Cost: \$500 million

- Biosolids recycled as fertilizer for agriculture industry
- Reclaimed water used for irrigation
- Heat, hotwater and electricity from methane treatment
- Outdoor and indoor ponds and streams use reclaimed water
- Education centre, interpretive exhibits, boardroom, library
- LEED Platinum certified

Did you know?

Secondary treatment removes organic substances using beneficial bacteria. The wastewater is then filtered to separate treated liquid from bacteria.

Secondary treatment is the federal minimum standard for wastewater treatment after 2020.

5. Edmonds City Wastewater Treatment Plant

Edmonds, WA



Size: 1 hectare (2.4 acres)
Population Served: 80,000 people
Treatment Plant Cost: \$34 million

- Secondary treatment plant
- Thermal reduction of solids
- Public plaza, green space, artistic water feature
- Located downtown in close proximity to residences

Did you know?

Tertiary treatment cleans and disinfects the wastewater further and can be done through a variety of methods, including membrane filters, UV filtration, or by adding cleansers like chlorine or peroxide.

6. Saanich Peninsula Wastewater Treatment Plant

North Saanich, BC



Size: 1.9 hectares (4.7 acres)

Population Served: 37,000

Treatment Plant Cost: \$20 million

- Serves North Saanich, Central Saanich, Sidney, the Victoria International Airport, Institute of Ocean Sciences and the Tseycum, Tsartlip & Pauquachin First Nations communities
- Can produce Class A Biosolids for beneficial use
- Recovered heat from effluent heats the water at Panorama Recreation Centre pool
- Tipping fees generate \$115,000/year

Did you know?

Gasification is the process of heating waste to over 900 degrees to turn it almost entirely into a clean gas.

This gas can be used for heating or power generation.

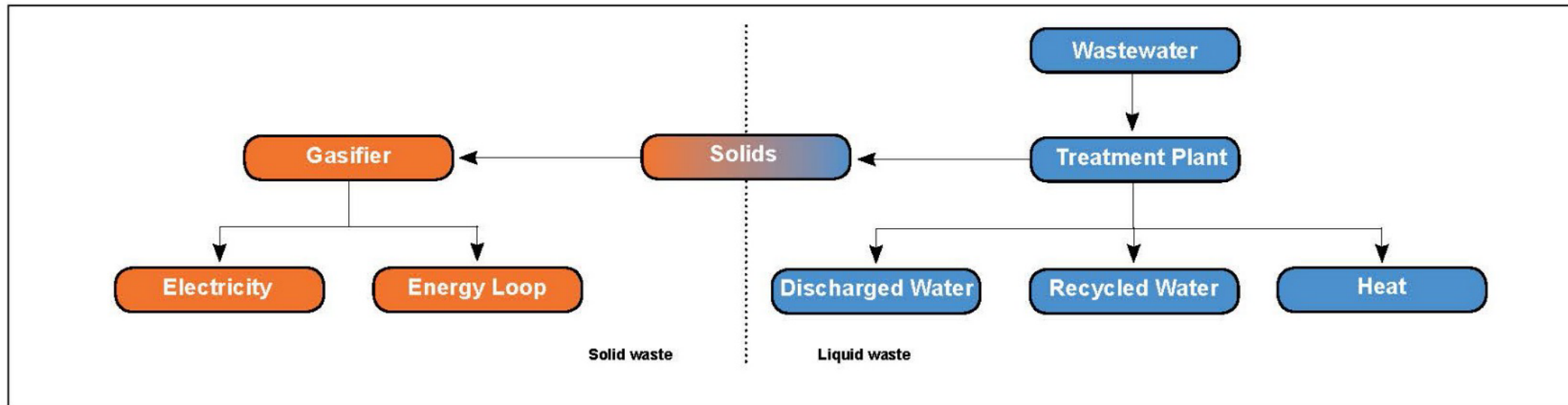


Figure 1: wastewater solids to gasifier

7. Henderson Wastewater Treatment Plant

Henderson, Nevada



Size: 40+ hectare site (100+ acres)

Population Served: 275,000 people

Treatment Plant Cost: \$4 million

- Originally a percolating pond activated sludge facility
- Updated pre-treatment, equalization, filtration, UV disinfection
- Reclaimed water pumped into public bird preserve ponds
- 7 miles of trails for visitor access

Did you know?

Bio-solids are an end product of the wastewater treatment process. Communities decide whether to discard them, dry them for use as a fuel source, or use them as nutrient rich soil additive.

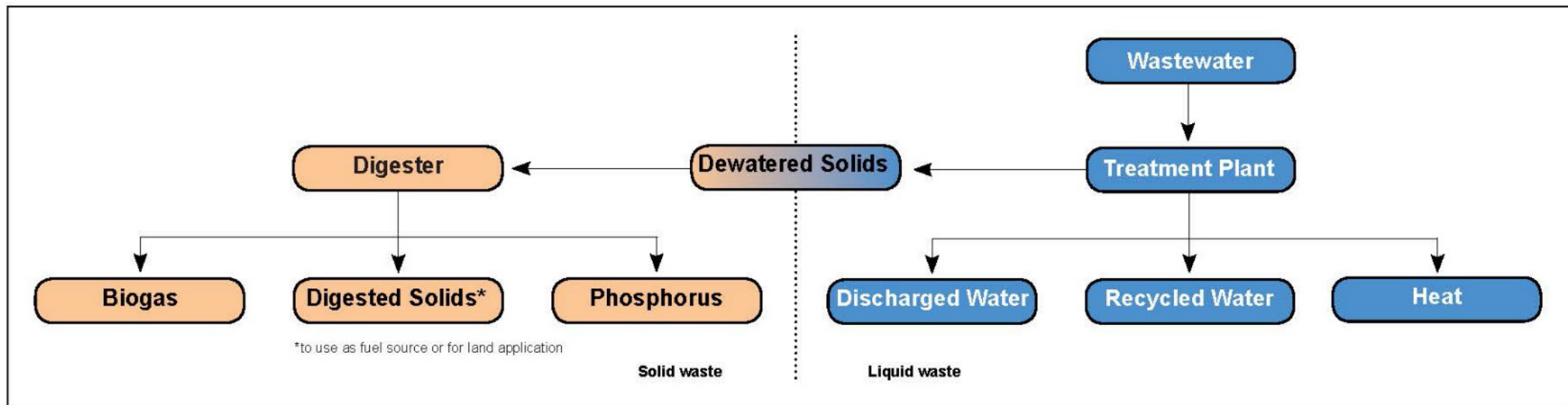


Figure 2: wastewater solids to digester

8. Brightwater Wastewater Treatment Plant

Snohomish County, WA



Size: 17.4 hectares (7 acres)

Population Served: 189,000 people (future 435,000)

Treatment Plant Cost: \$896.3 million

- Hybrid Advanced Treatment System
- Recovery and Recycling of plant resources
- Biosolids recycled as fertilizer for agriculture and forestry
- Biosolids composted by private company for landscaping
- Reclaimed water for landscaping, heating/cooling, irrigation
- LEED Platinum Certified

Did you know?

Treated water that meets environmental standards can be a critical part of water conservation efforts. It can be used for toilet flushing, irrigation, industrial cooling and other non-drinking uses.

9. Sooke Wastewater Treatment Plant

Sooke, BC



Size: 2.37 hectare lot (5.8 acres)

Population Served: 11,000 people

Treatment Plant Cost: \$23 million

- Provides secondary treatment with UV disinfection
- The District of Sooke and EPCOR received the Chuck Wills Award for Innovation and Excellence in Public-Private Partnerships in 2007
- Marine discharge through a 500 mm diameter pipeline
- Biosolids are hauled to Hartland landfill

Did you know?

Heat produced from the sewage treatment process can be captured and used to heat the facility. It can even be distributed to heat nearby buildings.

10. Santa Paula Water Reclamation Facility

Santa Paula, California



Facility Size: hectares

Process Modifications:

Original Cost: US\$ million

ADWF Unit Cost (in 2015 dollars): \$ per MLD

- tertiary treatment
- Trash and screenings disposed in local landfill
- Reclaimed water used for crop irrigation

Regulatory & Operating Permit Discharge Requirements:

- cBOD₅ - mg/L
- TSS - mg/L
- F. Coliform - CFU/100 mL

Did you know?

Bio-gas is produced when solids are treated. It generates methane gas that can be used as an energy source in the plant or offsite in the natural gas distribution system.

10. Duncan-North Cowichan Sewage Treatment Plant

Duncan, BC



Facility Size: 15 hectares

Population Served: 30,000 existing, 39,800 design

Process Details:

- Conventional aerated lagoon providing enhanced secondary treatment
- Trash and screenings disposed in landfill
- Seasonal chemical phosphorus removal with alum dosing
- Some capability to promote de-nitrification
- Chlorine disinfection followed by de-chlorination
- All effluent discharged to adjacent river

Operating Permit Discharge Requirements:

- cBOD₅ - 30 mg/L
- TSS - 40 mg/L
- F. Coliform - 200 CFU/100 mL
- Total P - 18 kg/d during August & September