

The Path of Water

There is a finite amount of water in the world. All water is recycled.

Humans are part of the water cycle. In 1995, more than 44,600 million gallons per day of treated water were put back into the environment in the United States by wastewater treatment plants.

Approximately 900 million gallons of reclaimed water are used each day in the US, primarily for irrigation.

Brightwater treats about 35 million gallons of water here each day, coming from residential, industrial, and commercial sources.

How do we use water? In Washington...

Surface and ground water sources

- Thermoelectric Power 23%
- Irrigation 40%
- Potable water supply 13%
- Industry 9%
- Mining 1%
- Domestic (self-supplied from wells) 1%
- Livestock, aquaculture less than 1%

At Home...

It is estimated that every person in the US uses around 100 gallons of water per day. The largest use of household water is to flush the toilet, and after that lawn and garden showers, baths, dishwashers, and clothes washers.

Most homes and businesses use a public water supply system (also used to bring water to businesses and industries). Some rural homes use water from their own wells, but it is a far smaller percentage of the population.

Personal water use per day

- Toilet 19 gallons
- Clothes 13 gallons
- Shower 13 gallons
- Faucet/other 8 gallons
- Lawn 7 gallons
- Dishwasher 2 gallons

Tours of the Brightwater facility are conducted on a regular basis. For more information, contact:

Brightwater Wastewater Treatment Plant

Interpretive Master Plan & Exhibition Design

Client
King County, WA

Location
North King County

Size
114 acres (one mile long)

The King County planners of the Brightwater Wastewater Treatment Plant hired LCS to develop potential educational opportunities and to design interpretive elements for the mile-long treatment site and system. The intent was to positively change people's perceptions and educate the public about wastewater treatment, the water cycle, and conservation, and ultimately help protect the health of people and the environment. The LCS scope of work for this project included investigating all potential educational aspects of Brightwater, developing tours and other interpretive elements, developing guidelines for the Environmental Education Center exhibit hall, and designing site signage.

Energy

At Brightwater, energy is a product of wastewater treatment.

Methane gas produced during the solids digestion process is burned in a boiler, producing enough energy to heat the digestion tanks and other buildings. Methane and digester gas are renewable resources whose energy generating potential is still being explored.

Energy Demonstration Facility

High-purity gas is produced for other energy generation technologies. The recovered captured gas is used to produce electricity. Methane production is also used for hydrogen production and other uses that can be used for other energy generating technologies.

- Fuel Cell
- Protonic Cell
- Fuel Technology

Solids Processing

Thickening

Solids are separated from the wastewater during primary and secondary treatment. Thickening allows for the removal of the solids. Thickened solids are sent to a dewatering facility for further processing. The thickened solids are then sent to digestion.

Dewatering and Biosolids

After digestion, the solids are sent through centrifuges to remove additional water. The dewatered biosolids are then dried, incinerated and are used as a carbon rich substrate for landscaping and forestry. Biosolids are also used as a substrate for growing a nutrient rich compost that is used for landscaping and gardening.

Tour One (walking tour)
2 hours 4 minutes

walking distance = approximately 5050 ft.
travel time = approximately 34 minutes
stopping time = 90 min. @ 5 min./stop with 18 stops

Key

- tour route
- - - school bus route
- ⑥ tour stop
- ⑦ non-ADA accessible tour stop
- artwork location

Labels on map: School Bus Pick-up/ Drop-off Location, EECC, Staging Location, Ellen Sollod Artwork, Potential artwork on chain-link fence, Reclaimed Water.

