City of Oak Harbor
Clean Water Facility

The success of the Oak Harbor Clean Water Facility was built on strong partnerships.

Thank you to our funding partners

This facility is a tribute to the community who participated in its siting, design, and construction

Our 24,000 residents and ratepayers that use the new facility
Over 1,000 community members attended events, shared thoughts, and stayed informed

In appreciation of the expertise from our dedicated project team

and the over 175 subcontractors and local companies that contributed to the project
City of Oak Harbor
Clean Water Facility

Constructing the Clean Water Facility

2015

Construction Begins

- June 2015 – Early work on a new outfall on City Beach St
- November 2015 – Breaking ground on the new Clean Water Facility

2016

Building the Foundation

- January 2016 – Excavation, foundation, and utility work
- May 2016 – Students from Oak Harbor High School create an art installation at site and the 165-foot tall tower crane is installed
- August 2016 – Lower levels begin taking shape
- November 2016 – Demolition of old wastewater treatment plant

2017

Coming Out of the Ground with Bricks & Mortar

- January 2017 – Roofs continue to take shape
- February 2017 – Above ground construction on most buildings start
- April 2017 – Equipment arrives on-site and interior work begins

2018

Electrical & Mechanical Equipment Installation, & Finishing Touches

- January 2018 – Equipment installation and electrical wiring continues
- April 2018 – Structures are complete
- June 2018 – Power to the site is turned on
- September 2018 – Testing for facility startup begins
- October 2018 – Whidbey Island Bank building is demolished

NOVEMBER 2018

Construction is Complete & Operations Begin!
City of Oak Harbor
Clean Water Facility

Treatment technology for the future

Headworks building
- Wastewater enters the facility through pipes under SE City Beach St and passes through an initial screen, which removes heavy material.
- Next, wastewater enters the vortex grit chamber and is swirled around. This helps grit (similar to sand) settle to the bottom of the chamber for easier removal.
- Wastewater passes through a fine screen, which filters out any sediment that passed through the initial coarse screen and the vortex grit chamber.

Aeration basins/Waste activated sludge storage
Air is mixed with the wastewater, stimulating the growth of microorganisms that consume part of the waste. The wastewater sits in large tanks, called aeration basins, for three to six hours while the microorganisms grow down.

Secondary treatment building
Wastewater passes through the membrane bioreactor to separate microscopic solids from liquids.

UV treatment
Liquid gets its tan on and flows through a pipe with UV lamps throughout the interior. The UV light kills microorganisms in the liquid by damaging their DNA. The treated water travels through the outfall pipe into Oak Harbor Bay.

Solids building
After being separated from liquid wastewater via the membrane bioreactor in the secondary treatment building, solid waste is dried in a solids dryer. The waste travels across a belt while hot air flows over it, drying the waste as it travels through the unit.

Maintenance building
- Equipment stored here helps make sure the machinery in the Clean Water Facility stays in tip-top shape.

Odor control
- Air pumped from other buildings is "scrubbed" by biological materials that absorb odors. Then, air is "polished" by activated carbon (fancy charcoal) to absorb any remaining odors before the treated air is released.

Aeration blower building
- Blowers pump air into the aeration basins to stimulate the growth of microorganisms.
- Air blown into the aeration basins must be kept above freezing and below 86 degrees. Any colder and microorganisms die. Any warmer and too many microorganisms grow.

Electrical building
Treating the City’s wastewater requires consistent electric power. Equipment housed in this building monitors and maintains the facility’s electricity.

Emergency generator area
Wastewater doesn’t stop flowing when the power’s out! This building’s name says it all – the emergency generator will provide back-up and emergency support in case of an outage.

Administration building
- Keeping Oak Harbor’s wastewater flowing takes a lot of work. Facility staff monitor quality in the lab and maintain system functions via a control network.
- The administration building also includes an interpretive center, a multi-purpose space for City functions where you will be able to learn more about the City and facility.

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City of Oak Harbor
Clean Water Facility Project

How our new facility works

THE SOURCE
Untreated wastewater flows into the Clean Water Facility from homes and other buildings in Oak Harbor.

HEADWORKS BUILDING
- Sticks, leaves, plastic, and other big things are removed.
- Wastewater is mixed in the vortex grit chamber.
- Silt (the size of sand) is filtered out.

AERATION BASINS
Micronorganisms chew down on waste during a 3-6 hour bath; air is blown over the basins to keep the temperature just right for micronorganisms.

SECONDARY TREATMENT BUILDING
Wastewater flows through an even smaller filter, removing microscopic solids from the liquid.

SOLIDS BUILDING
The leftover solid waste is dried on a conveyor belt and turned into fertilizer.

Grit (the size of sand) is filtered out.

UV TREATMENT
Wastewater gets its tan on, flowing through a pipe with UV light that kills bacteria.

Cleaned water flows into Oak Harbor Bay through an underwater pipe called an outfall.

Oak Harbor is committed to producing clean water for wildlife like me.

Wastewater is swirled in the vortex grit chamber.

Dried solids are trucked away for use as great fertilizers for golf courses, farms, community gardens, and other locations.
How wastewater flows

1. Roughly 24,000 people in Oak Harbor are served by the City’s wastewater system. That’s a lot of people!

2. Small pipes carry water from your toilet, shower, and sinks to larger pipes in the streets.

3. Everyone’s waste flows through these pipes to the Clean Water Facility for treatment. These pipes are under the City streets.

4. Cleans and treats water to make it safe for the environment and wildlife.

5. Clean, treated water flows from the facility into the bay through a pipe called an outfall.

6. Water from the facility is clean and safe for wildlife, like fish, birds, seals, and more!
City of Oak Harbor
Clean Water Facility

Improvements coming to
Windjammer Park

- Clean Water Facility
- Public plaza
- Kitchens
- Splash park
- Nature play area
- Promenade
- Wetland area
- Parking areas
- Basketball/pickleball courts
- Restrooms
- Gateway pavilion
- Walking paths