



CLACKAMAS
WATER
ENVIRONMENT
SERVICES

2022 ANNUAL REPORT





Message from the Director

This past year was a year of milestone achievements, rewarding partnerships and progress on projects designed to strengthen our ability to serve you and all the diverse communities and businesses in northern Clackamas County.

In this annual report, I want to share with you how Clackamas Water Environment Services dedicated our resources over the past 12 months to producing clean water, protecting water quality and taking on our biggest challenges and priorities.

Through innovative, forward-looking partnerships with cities in the WES service area, we worked collaboratively to reduce Inflow and Infiltration (I/I) in sewer systems owned by our partner cities. Keeping extra water out of pipes will save approximately \$120 million over the next two decades – money we'll use to better serve you.

In addition to strengthening our infrastructure and technology, WES once again partnered with dozens of local community groups and thousands of volunteers of all ages to protect our many local natural areas and waterways. Helping create a new generation of environmental stewards benefits our communities now and well into the future. Environmental knowledge is powerful and impactful.

WES is proud to be deeply connected to the communities we serve, whether it's partnering on projects, supporting community events or educating residents from all walks of life.

2022 was a very productive year, but for WES, the best is yet to come.

On behalf of WES, I wish you all a happy and healthy 2023. It is our pleasure and privilege to serve you.

Greg Geist
Director, Clackamas Water Environment Services



The WES service area includes:

- | | | |
|-----------------------|--------------|--|
| Boring | Hoodland | Rivergrove |
| Fischer's Forest Park | Johnson City | West Linn |
| Gladstone | Milwaukie | Communities in unincorporated Clackamas County |
| Happy Valley | Oregon City | |

Our Service Area

Why We're Here

Clackamas Water Environment Services produces clean water, protects water quality and recovers renewable resources. We do this by providing wastewater treatment services, stormwater management, and environmental education. It's our job to protect public health and support the vitality of our communities, natural environment, and economy.

Where We're Going

Be a collaborative partner in building a resilient clean water future where all people benefit and rivers thrive.

What We Stand For

- Protecting Public Health
- Investment in Our People
- Stewardship of Healthy Watersheds
- Responsive Customer Service
- Fiscal Responsibility
- Water Resource Recovery

❖ Upgrading Our Water Resource Recovery Facilities



Joshua Clark,
WES Interim Operations
Manager

Like most people, you may not think about what happens after you flush the toilet. We do.

It's our job to ensure these vital services work for you every day of the year.

It takes a lot of science and engineering to make it happen, and we're always exploring innovative ways to make our systems even more efficient.

Over the past year, we continued to upgrade and modernize our largest water resource recovery facilities, which together clean more than seven billion gallons of wastewater every year.

2022 has been a year to operationalize the major upgrades we have made at

the Tri-City Water Resource Recovery Facility over the last few years. Our new, low-emissions biogas project transforms organic waste into renewable energy. This co-generation system, at full output, produces heat for five buildings at the site and an estimated 4,300 megawatts of electricity annually — enough to offset nearly half of the facility's energy use.

At the Kellogg Creek Water Resource Recovery Facility, we are participating in Energy Trust of Oregon's Strategic Energy Management Program, which helps organizations like ours train employees to identify and implement energy-saving opportunities. This year we offset enough of our energy usage to power the equivalent of 25 homes.

We'll continue updating our technology to keep pace with the growing population we serve to ensure that these reliable and affordable services are available to serve you now and for many years to come.

1 Taking samples from the aeration basin at Tri-City

3 The Kellogg Creek Water Resource Recovery Facility in Milwaukie

5 Inspecting the blowers at Kellogg Creek

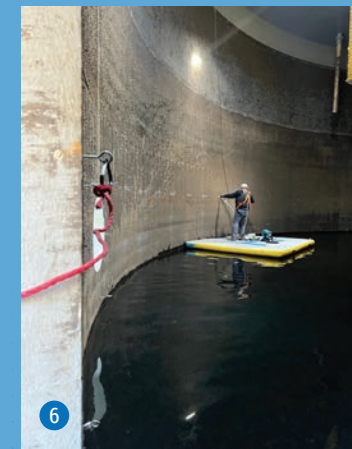
7 Searching for energy savings at Kellogg Creek

2 WES Director Greg Geist leads a tour at Kellogg Creek

4 The Tri-City Water Resource Recovery Facility in Oregon City

6 Grouting work on the inside of a digester at Tri-City

8 The co-generation engine at Tri-City



❖ Preserving Our Watersheds



Leah Johanson,
WES Senior Civil Engineer

WES is in the process of designing a large stream restoration project at our 80-acre 3-Creeks Natural Area. The goal of this project is to improve water quality, reduce downstream flooding and improve stream habitat. Restoration of Mt. Scott Creek will include adding streambed material and logs to reconnect the creek to the floodplain.

In addition, WES will optimize the existing flood control facility to reduce the frequency of downstream flooding. Once complete, this project will improve the functionality and natural resources of this important space.

The site has also been a fantastic resource for educational groups like Trackers Earth Portland, providing a unique outdoor learning experience for young people, such as animal tracking and stewardship, within a natural environment close to home.



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1 Aerial photo of the 3-Creeks Natural Area

2 The Oregon white oak supports many native animal species year-round by providing food, shelter, and good nesting habitat.

3 WES staff provide a tour at 3-Creeks

4 Trackers Portland leads a tour at 3-Creeks, which included plant identification and how to spot signs of wildlife



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❖ Keeping Our Waterways Clean with SOLVE



Kris Carico, SOLVE
Chief Executive Officer

The partnership between SOLVE and WES for the Summer Waterways Cleanup Series has been highly successful. In 2022, 1,481 volunteers participated in nearly 70 cleanup projects to collect and dispose of 11,373 pounds of trash and pollutants from our treasured waterways and natural areas.

Litter cleanup projects for this series occurred along the Clackamas, Sandy, and Willamette Rivers. Mentionable cleanup projects also took place at Camp, Johnson, Oswego, Mt. Scott, Dean, and Willow Creeks.

This partnership is a testament to the work that can be accomplished when Oregonians join forces in environmental stewardship. We look forward to continuing our collaboration with WES and promoting cleaner and healthier waterways for many years to come.

Learn more about the WES-SOLVE Summer Waterway Cleanups at www.solveoregon.org/summer-waterway-cleanups.



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1 Orientation at Oregon City in Clackamette Park

2 Big haul of trash at a cleanup

3 Cleaning up 3-Creeks Natural Area

4 Volunteers remove trash at Riverside Park

❖ Creating Watershed Health Partnerships



Gail Shaloum,
WES Natural Resources
Scientist

Our Watershed
Protection team

protects watershed health with programs that reduce pollution caused by urban stormwater runoff, and improve fish and wildlife habitat in our rivers, streams and wetlands.

One of the best ways we have found to stretch our resources and accomplish more is to engage community partners in our efforts. In 2022, WES awarded \$300,000 in grants through our RiverHealth Stewardship Program to 12 organizations dedicated to protecting and improving the health of our watersheds.

The grants support activities that restore habitat, manage invasive plants, organize community volunteer events, provide watershed science education, and remove trash from waterways, thereby improving watershed health and water quality. These projects also help us meet our regulatory requirements.



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1 The World Salmon Council educates students about the lifecycle of northwest salmon

2 Youth learning about watershed health through our partnership with the Estuary Partnership



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3 Friends of Trees team up with volunteers to plant trees as part of their grant



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❖ Maintaining and Improving Our Shared Sewer System



Jessica Rinner,
WES Civil Engineering
Supervisor

Inflow and Infiltration (I/I) reduction is a top priority for our team.

I/I is rainwater or groundwater that gets into sewer lines through improper connections or damaged pipes and increases the amount of water that reaches our water resource recovery facilities, which we then have to treat.

I/I also increases the risk of sewer overflows within the collection system.

Reducing I/I in key basins by 2040 would save approximately \$120 million in required upgrades and expansion in the collection system and at our treatment facilities.

We're teaming up with our partner cities that own and maintain their own sewer systems, which deliver wastewater to WES' treatment facilities to reduce I/I and save our ratepayers money.



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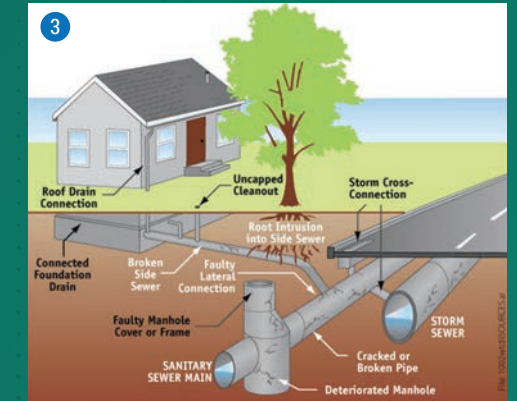
1 WES field operators inspect the pipes

2 Groundwater infiltrates a wastewater pipe

3 Illustration of I/I sources



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❖ Investing in Our Community



Shelly Parini,
WES External Affairs

At WES, we understand that safeguarding a clean water future where all people benefit and rivers thrive requires collaboration and partnership.

One of the many ways we collaborate with our district cities and unincorporated areas is through community sponsorships. These partnerships provide us with an opportunity to educate our customers and diverse stakeholders on a variety of topics related to watershed health.

From the Gladstone Community Festival and National Night Out in Happy Valley, to Summer Movies in the Park in Milwaukie, Oregon City and West Linn, sponsorships allow WES to educate attendees about how WES protects public health and supports the vitality of our communities, natural environment and economy.

WES also partners with the local business community, educational institutions and watershed councils to address clean water issues that affect us all.



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1 WES field operations staff teach kids about WES at Happy Valley's National Night Out

2 Crew leaders at the Bioblitz led the public in identifying and recording as many species as possible at the Environmental Learning Center

3 Young attendee at Gladstone Community Festival



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Community investment is just one of several ways that WES engages neighbors of all ages to help keep our waterways clean.

❖ Turning Waste into Resources



Terrance Romaine,
WES Resource Recovery Supervisor

You're probably aware we treat wastewater, but did you know we recycle solids too?

As wastewater enters the water resource recovery facility, solids are put through biological and physical processes that separate them from water. The separated solids are broken down and used as food by microorganisms in a process called anaerobic digestion.

Anaerobic digestion destroys harmful bacteria and produces a product called biosolids, which contain nitrogen, phosphorus, and micronutrients that improve soils, reduce erosion, and retain water.

Each year, we transport about 11,000 tons of biosolids to farms with non-food crops in eastern Oregon to be applied on their fields, which eliminates their need for expensive fertilizers.

All of this recycling means less landfill waste, less pollution, and a healthier environment for us all.



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1 Land application of biosolids in eastern Oregon

2 Getting ready to transport biosolids



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❖ Building for Our Future



Jeff Stallard, WES
Capital Program Manager

Our capital team plans, designs and builds major facilities so we can serve our customers' wastewater and surface water needs.

As the population grows, wastewater flows to our facilities will increase. This wastewater is treated, and the effluent is discharged to the Willamette River through our outfall via a diffuser valve.

The current Tri-City Water Resource Recovery Facility outfall was constructed nearly 40 years ago and is nearing capacity. WES has determined a new outfall is needed and is designing one that will be completed in 2025.

As part of permitting for this project, we completed an archaeological investigation in compliance with the National Historic Preservation Act.

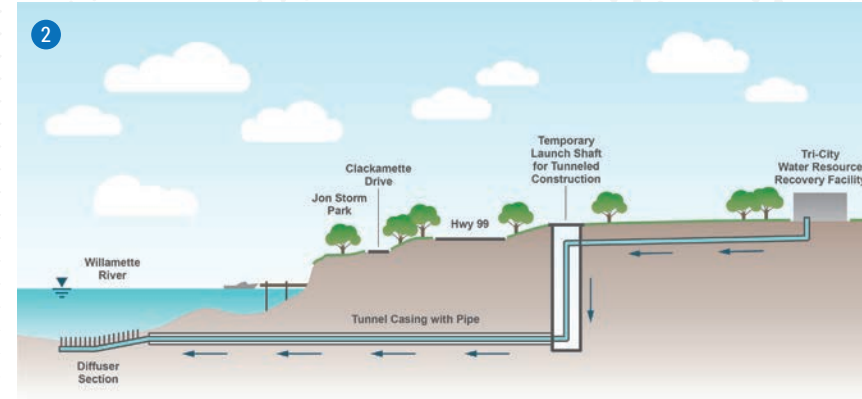


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1 Diffuser valve discharges effluent by diffusion to allow for gradual water mixing within the river

2 Diagram of the tunneling planned for the new outfall

3 Map of the outfall alignment



Learn more about the outfall project at www.tricityoutfall.info

❖ Financial Stewardship

We take our responsibility as stewards of ratepayer dollars very seriously.

For 28 consecutive years, WES has received Certificates of Achievement for Excellence in Financial Reporting. We currently have the highest credit rating assigned by S&P Global Ratings, reflecting our commitment to fiscal responsibility.

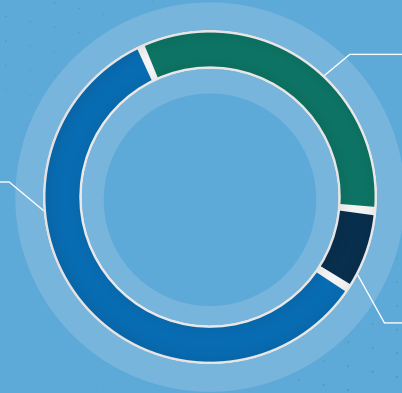
We are committed to keeping rates affordable and maintaining monthly service rates in line with the local area average while meeting the needs of growing communities and replacing aging infrastructure.

WES is also committed to assisting our customers. We offer low-income discounts to customers in need, and in 2022, WES implemented the new federal Low Income Household Water Assistance Program to provide additional bill payment assistance.

Your Rate Dollars at Work

66% Operations and maintenance

- All wastewater treatment services, including waste removal, biosolids management, and disinfection of water
- Day-to-day plant maintenance
- Regulatory compliance, including laboratory
- Day-to-day collection system maintenance, including pump stations
- All surface water services, including conveyance and control of stormwater runoff
- Maintenance and cleaning of stormwater infrastructure
- Restoration and enhancement of riparian areas
- Public education related to water quality and stormwater issues
- Watershed planning and regulatory compliance



25% Infrastructure financing and reserves

- Equipment replacement
- Reserves for future project needs
- Building treatment capacity for future growth
- Construction projects

9% Debt payments

- Principal and interest on long-term debt used to finance capital projects

Percentages are based on the fiscal year 2022-23 budget

❖ 2022 WES Awards

WES proudly supports top county priorities, which include ensuring safe, healthy and secure communities, growing a vibrant economy, and honoring, utilizing, promoting and investing in our natural resources.

In 2022, WES was honored with national and regional awards reaffirming our dedication to protecting public health, our shared environment and the county's future economic vitality.

The National Association of Counties (NACo) recognized WES with a 2022 Achievement Award in the category of County Resiliency: Infrastructure, Energy, and Sustainability for its Solids Handling Improvements Project.

The Pacific Northwest Clean Water Association (PNCWA) also honored WES' Solids Handling Improvements Project with its 2022 Sustainability Award, and also recognized WES with its 2022 Professional Excellence Award.

These awards reflect WES' commitment to ensuring that residents and visitors enjoy the benefits of safe, healthy and clean water in Clackamas County.



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1 County commissioners and Jeff Stallard with the 2022 NACo Achievement Award

2 Leah Johanson and Ron Wierenga at PNCWA

3 Ron Wierenga accepts 2022 PNCWA Professional Excellence Award

4 Jeff Stallard receives 2022 PNCWA Project Sustainability Award

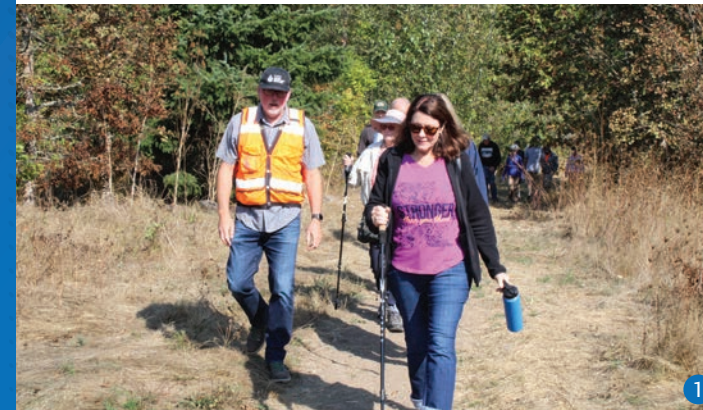
❖ Commissioners and Advisory Committee

The Clackamas County Board of Commissioners serves as the governing body of WES.

Commissioners receive recommendations from the WES Advisory Committee on a variety of key issues. The WES Advisory Committee includes ratepayers, environmental representatives, business

owners, members of the development community and elected officials.

Members bring experience in wastewater management, watershed health and restoration, economic development and surface water. The committee provides input and makes recommendations to WES and the Board of County Commissioners.



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1 Advisory Committee Chair Diana Helm tours the 3-Creeks Natural Area with WES Assistant Director Ron Wierenga

2 Chair Tootie Smith tours the Tri-City Water Resource Recovery Facility with WES Director Greg Geist

3 Advisory committee members William Gifford and Rita Baker at the PNW Water Reuse Summit

4 Commissioner Martha Schrader at the Tri-City Water Resource Recovery Facility

All WES Advisory Committee members either live or work within the WES service area.

- Rita Baker, Unincorporated Representative
- Mary Baumgardner, West Linn City Councilor
- Christopher Bowker, Gladstone Representative
- David Golobay, Happy Valley City Councilor
- Greg DiLoreto, West Linn Representative
- Anthony Fields, Milwaukie Representative
- William Gifford, Oregon City Representative
- Renee Harber, Environmental Learning Center at Clackamas Community College
- Diana Helm, Business Representative
- Brian Johnson, Johnson City Representative
- Roseann Johnson, Development Community Representative
- Adam Khosroabadi, Milwaukie City Councilor
- Denyse McGriff, Oregon City Mayor
- Kathryn Miller, Unincorporated Representative
- Michael Morrow, Happy Valley Representative
- David Schleaf, Business Representative
- Tammy Stempel, Gladstone Mayor
- Martha Schrader, commissioner; liaison,
- Paul Savas, commissioner liaison alternate

**“At WES, we all serve
different functions, but
we fit together to solve
the clean water puzzle.”**

- WES Director Greg Geist

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