



King County

Department of
Natural Resources and Parks
Wastewater Treatment Division

the
next

50

Clean
Water

& Beyond



Ratepayer Report 2016

April 2016

Our regional wastewater treatment system has a big job to do. Not only does it operate around the clock to sustain a healthy environment, this vital infrastructure supports economic development that enables our region to thrive.

To keep the system operating reliably as our population grows, King County will need to continue investing in system upgrades and improvements.

This report was developed to share information about the services we provide, and to explain a proposed rate increase of \$2.19 scheduled to go into effect on Jan. 1, 2017. Under the proposal, the monthly wholesale sewer rate of \$42.03 would increase by \$2.19 to \$44.22. The capacity charge of \$58.70 that newly connecting customers pay in addition to their monthly sewer rate would increase by \$2.10 to \$60.80.

The sewer rate provides the revenue to operate our regional treatment facilities, and to inspect and maintain crucial equipment. Rate revenue also covers the cost to recycle valuable resources from the wastewater process, including energy, irrigation water and fertilizer replacements. These products support sustainable communities, mitigate climate change impacts and reduce reliance on fossil fuels. By creating resources from wastewater, we are on our way to becoming a carbon neutral utility by 2017.

The capacity charge revenue goes toward new facilities and system upgrades designed to accommodate our growing population. Since 2000, an additional 380,000 people live and work in King County, and making sure our system capacity keeps pace is an important responsibility.

The 2017-2018 rate proposal ensures that the Wastewater Treatment Division continues meeting regulatory requirements under state and federal environmental laws. It supports Duwamish and Puget Sound cleanup goals, funds programs to recycle valuable resources, and safeguards the health of our residents by regulating the disposal of industrial waste. Ratepayer investments also fund emergency preparedness to ensure our facilities are resilient to flooding, earthquakes, and other crises.

Finally, the proposal protects our credit rating so we can continue obtaining favorable interest rates on money we borrow to make capital improvements.

We hope this report increases your understanding of our utility's commitment to fiscal and environmental stewardship. We appreciate the opportunity to serve you and welcome your questions and comments.

*Our headquarters
in downtown
Seattle.*



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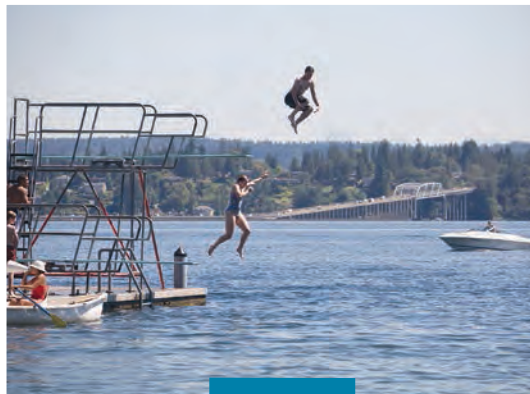
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The History of Our Mission

KING COUNTY'S WASTEWATER TREATMENT DIVISION: A CLEAN-WATER AGENCY



from this...



to this...

WTD protects public health and enhances the environment by collecting and treating wastewater while recycling valuable resources for the Puget Sound region.

The natural beauty of the Puget Sound region provides an enviable quality of life for our residents and attracts thousands of visitors and newcomers each year.

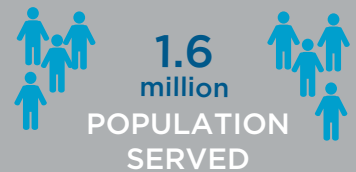
But just 50 years ago, our water quality was in serious peril. Millions of gallons untreated sewage flowed daily into Lake Washington, Puget Sound and local rivers, fouling our waterways and recreational beaches.

Tired of pollution and frustrated by the lack of a regional authority to address it, the voters in 1958 established the Municipality of Metropolitan Seattle, better known as Metro. Construction on our two regional treatment plants – South Treatment Plant in Renton and West Point Treatment Plant in Seattle – was completed in the mid-1960s. Within just a few years, water quality began improving and today Lake Washington is one of the world's cleanest urban lakes.

In 1994, King County assumed authority of Metro and its legal obligation to treat wastewater for 34 jurisdictions and local sewer agencies throughout the Puget Sound region.

Today, King County's Wastewater Treatment Division continues its clean-water mission, treating wastewater and recycling its byproducts to create valuable resources such as energy, reclaimed water and biosolids. The division's investments and commitment to the environment will help to ensure our natural resources are protected for the next generation to enjoy.

FAST FACTS:



424 square miles
AREA SERVED



A Regional System—Serving Our Local Partners and You

Under the regional system established by voters in 1958, the 34 sewer utilities within King County's wastewater service area (listed at right) no longer build and operate individual treatment plants. Today, they contract with King County to treat wastewater at one of three regional treatment plants.

The local jurisdictions and sewer utilities operate and maintain more than 5,100 miles of pipelines and numerous pump stations that collect wastewater from homes and businesses and send it to King County's regional system for treatment.

Their monthly sewer bills, which reflect the costs to manage, maintain and upgrade the local sewer collection systems, also include King County's monthly wholesale rate to cover our costs to operate and maintain the regional treatment system.

Why a regional system?

A regional system is overall more economical because it costs less to build and operate a few large facilities rather than several smaller ones. Costs can also be spread out over a larger customer base, which keeps rates stable while providing high quality service. Finally, the regional system provides flexibility because flows can be directed to other portions of the system during storms or emergencies.



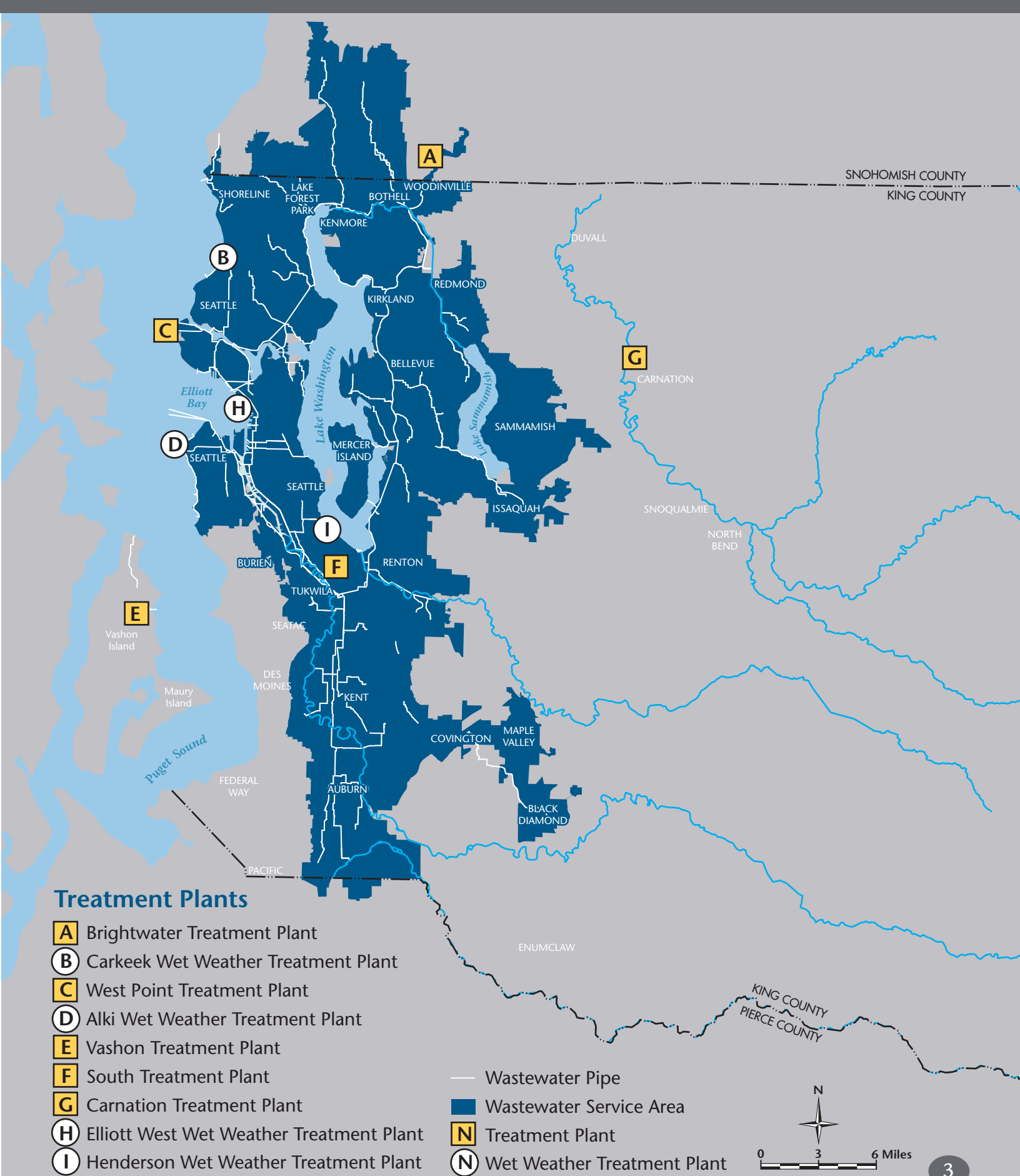
Clean water starts here. In 2015, WTD guided more than 15,000 community members and students through treatment plant tours, workshops, lectures and exhibits.



CUSTOMER AGENCIES SERVED BY KING COUNTY

Alderwood Water & Wastewater District
City of Algona, Public Works
City of Auburn, Public Works
City of Bellevue, Utility Services
City of Black Diamond, Public Works
City of Bothell, Public Works
City of Brier, Public Works
City of Carnation, Public Works
Cedar River Water & Sewer District
Coal Creek Utility District
Cross Valley Water District
Highlands Sewer District
City of Issaquah, Public Works
City of Kent, Public Works
City of Kirkland, Public Works
City of Lake Forest Park, Public Works
Lakehaven Utility District
City of Mercer Island, Maintenance
Muckleshoot Indian Tribe
Northeast Sammamish Sewer & Water District
Northshore Utility District
Olympic View Water & Sewer District
City of Pacific, Public Utilities
City of Redmond, Public Works
City of Renton, Public Works
Ronald Wastewater District
Sammamish Plateau Water & Sewer District
City of Seattle, Public Utilities
Skyway Water & Sewer District
Soos Creek Water & Sewer District
City of Tukwila, Public Works
Valley View Sewer District
(formerly Val Vue Sewer District)
Vashon Sewer District
Woodinville Water District

Our Service Area and Facilities







The Wastewater Treatment Process

That flush may be the end for you, but for us, it's where we get started.

On an average day, you'll likely use about 75 to 100 gallons of water. After you flush a toilet, brush your teeth, wash clothes, or take a shower, that "used" water leaves your house, but it doesn't go away.

King County works with your local sewer agency to take the sewage from your home or workplace, clean it, recycle it, and return it safely to the environment.

PROTECTING WATER QUALITY STARTS WITH YOU

-  **Don't trash the system.** Putting trash, wipes, hygiene products and condoms in the toilet can clog pipes and damage pumping equipment.
-  **Think "green" when you can.** Choosing environmentally friendly, biodegradable household cleaning and personal care products minimizes the entry of harmful chemicals into the environment.
-  **Disconnect.** Too much water in the system can create overflows and pollute the environment – disconnect downspouts from the sewer system and redirect them to lawns and gardens.
-  **Conserve.** Conserving water reduces your monthly bill and prevents excess water from entering the system, so there's less to treat.

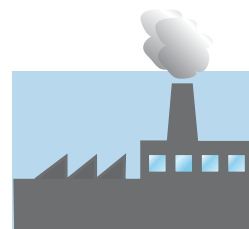


WASTEWATER SOURCES



Homes & Businesses

Sewage travels through miles of pipelines before entering a treatment plant.



Industries

King County's Industrial Waste Program regulates the wastewater discharged to our system by businesses and industries. These standards protect our system and the quality of our reclaimed water and biosolids.

Local Sewer Pipes

Regional Sewer Pipes & Pumps

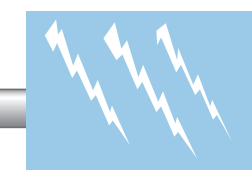
Combined Sewer Overflows

Overflows of sewage and stormwater can sometimes occur in older areas of Seattle during heavy rains. Though these combined sewer overflows (CSOs) are 90 percent stormwater, they can impact water quality and pose public health risks. King County's Protecting Our Waters Program will complete work started in 1979 to control these overflows.

REGIONAL WASTEWATER TREATMENT PLANTS

Once at the treatment plant, water and the organic solids are separated. The water is treated through natural biological processes that use bacteria, oxygen and settling tanks. The end product meets stringent water quality standards prior to discharge.

RECYCLED & REUSED PRODUCTS



Energy Recovery



Biosolids Recycling

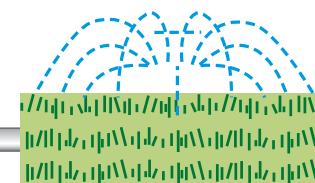
All organic solids removed from the water are treated in a separate biological process that creates nutrient-rich biosolids, which are used as a fertilizer and soil amendment. Waste gas from the digester process is captured and used to run equipment and/or scrubbed and turned into natural gas or electricity.

PUGET SOUND

Clean Effluent

Additional treatment

The treated water is then disinfected and either returned to Puget Sound or treated further and reused for industry or irrigation.



Recycled Water

Our Services



South Treatment Plant, Renton

Sewer system pipe diameter ranges from 12 inches to 16 feet.



Treatment

Each day, King County treats about 185 million gallons of wastewater. During severe storms, peak volumes can easily exceed 700 million gallons in a day.

Regardless of weather conditions or flow volumes, the county is required to protect public health and the environment by meeting its water quality permit standards – 24 hours a day, seven days a week.

King County operates three regional wastewater treatment plants, two small local plants and four wet weather plants that treat combined flows of stormwater and wastewater during heavy rains.



Brightwater Treatment Plant

Conveyance

The county's regional wastewater treatment conveyance system includes 391 miles of pipelines, which is a little more than the round trip distance between Seattle and Portland.

It also includes 47 pump stations and 19 regulator stations that operate around the clock to get your wastewater to a treatment plant.

Division employees continually inspect, monitor and maintain these facilities to ensure reliable operation in all types of weather and flow conditions.



West Point Treatment Plant, Seattle

Resource recovery – creating resources from wastewater

Beyond treating wastewater, the utility continues to invest in programs to harness valuable resources from the treatment process. Through renewable energy production, energy conservation, and carbon and nutrient recycling, the division strives to meet its goal to operate as a carbon-neutral utility by 2020, which means we will make no net release of carbon dioxide to the atmosphere.

Pollution prevention and cleanup



Working with state and local agencies to keep new and ongoing sources of pollution out of local waters is another important agency responsibility.

WTD is nearing the finish line on its Protecting Our Waters Program to control overflows of stormwater and sewage that still occur in older parts of Seattle during heavy rains, with its remaining seven projects slated for completion by 2030.

Employees with the Industrial Waste Program will continue enforcing regulations to prevent businesses from discharging harmful substances into the sewer system that could damage the treatment plant, pollute water or kill marine life.



The division produces about 300 million gallons of high-quality recycled water each year. In response to customer interest in recycled water during the severe and historic 2015 drought that put stress on King County ecosystems, WTD entered new agreements to provide recycled water to the Lake Washington Youth Soccer Association's play fields at 60 Acres Park, and the City of Kirkland for its municipal uses.

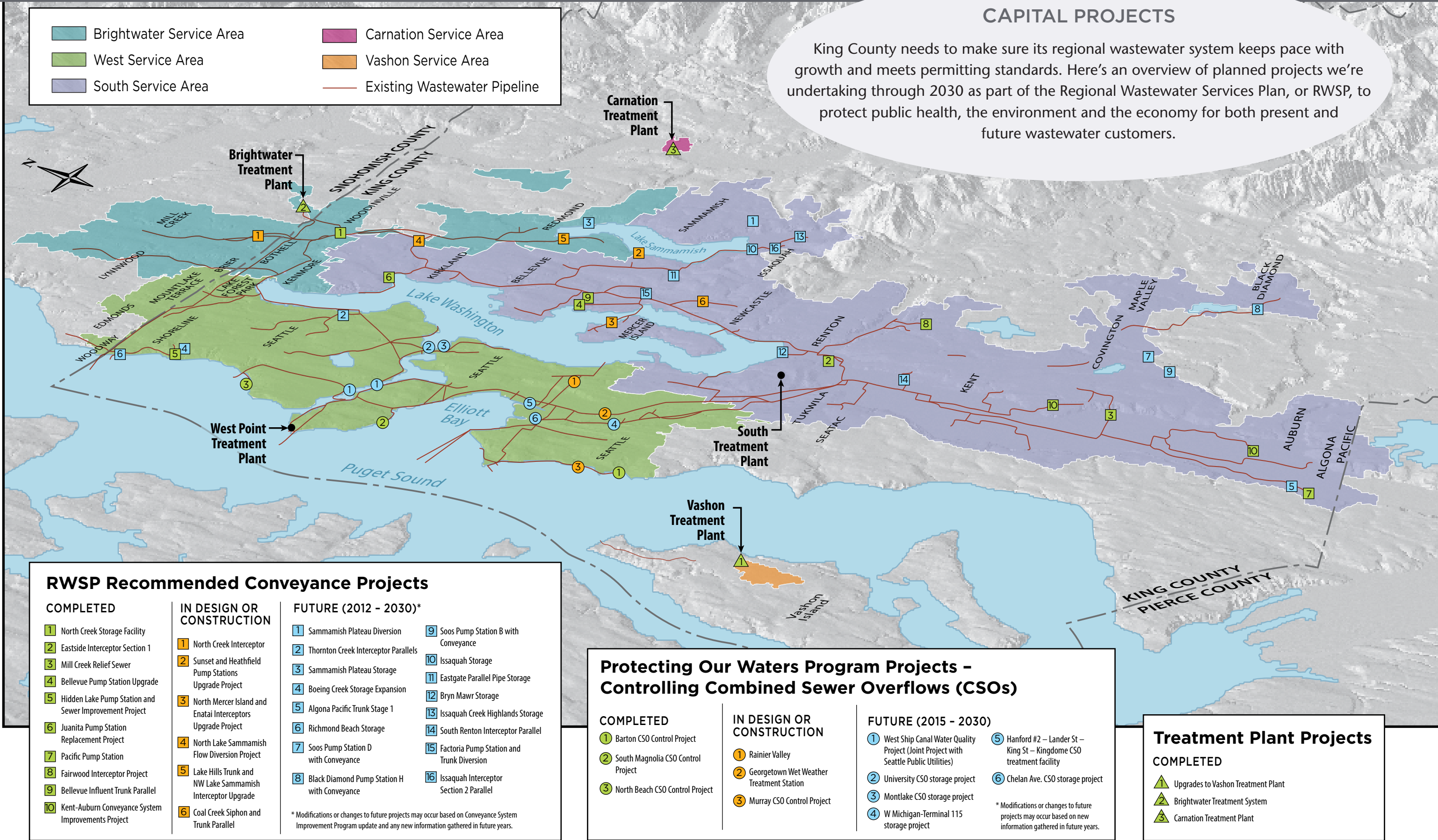
(Below) Methane gas produced naturally by the treatment process is captured and turned into energy for plant processes or sold to local utilities. WTD also operates cogeneration systems at two of its treatment plants that transform waste gas into electricity that is used onsite or returned to the power grid.



WTD recycles about 120,000 tons of Loop[®] biosolids annually, which nourishes 7,000 acres of farms and forests. Loop's ability to store carbon and mitigate the effects of greenhouse gas emissions is the equivalent of taking 8,000 cars off the road each year.



System Investments



Major Capital Projects Now Underway

Infrastructure investments protect our natural resources and support economic development. Here are some of the larger projects the Wastewater Treatment Division has planned over the next few years.



In addition to supporting growth and development, the division's capital program generates about 1,300 jobs in the local economy each year.

North Creek Interceptor Project: The County will invest \$22.8 million in 2016 to complete construction to repair and replace a 2-mile pipeline that has been serving the Bothell area since 1970. The new pipeline will increase system reliability and accommodate population growth in this portion of the service area.

Lake Hills/NW Lake Sammamish Interceptor Upgrade: King County will budget \$4 million in 2016 to begin design on a project to upgrade two miles of aging pipeline in Redmond that has been in service for as long as 60 years. The new pipeline will increase system reliability and accommodate population growth.

Sunset/Heathfield Pump Stations and Force Main Upgrade Project: In 2016, King County plans to invest \$4.7 million to design two pump stations in Bellevue as well as connecting sewer pipelines. The project also entails upgrading the Eastgate Trunk structure near I-90, which enables wastewater from these pump stations to get to King County's South Treatment Plant in Renton.

North Mercer Island and Enatai Interceptors Upgrade: In 2016, King County will budget \$1.7 million to continue project planning and design to replace sewer pipelines that have served neighborhoods in North Mercer Island, southwest Bellevue and the town of Beaux Arts Village since 1970.

South Treatment Plant Improvements: King County plans to invest \$12.7 million to replace or upgrade critical treatment plant equipment including pumps, motors, and drives, which will improve system reliability, reduce maintenance costs and increase energy efficiency.

Artist's rendering of the Georgetown Wet Weather Treatment Station. King County will invest \$13.4 million to continue design in 2016 on a new facility in Seattle's Georgetown neighborhood that will treat up to 70 million gallons of stormwater and sewage that currently flows directly into the Duwamish River during heavy rains. The project is scheduled for construction in 2018.



Kent-Auburn Conveyance System improvements Project (Phase B):

This year, King County will invest \$3.1 million to expand the capacity of the wastewater conveyance system in the south portion of its service area. Construction will include installing new sewer lines and replacing aging pipes in Pacific, Algona and Auburn. Work will also include modifications to piping at the Pacific Pump Station in Pacific.

Lower Duwamish Waterway Superfund: King County will budget \$4.8 million to continue working with Boeing, the City of Seattle and the Port of Seattle Superfund to address historically contaminated sediments in the Lower Duwamish Waterway.

Conveyance System H2S Corrosion Rehabilitation: King County will invest \$3.9 million to repair and replace sewer pipelines throughout its service area that are deteriorating or damaged as a result of corrosion caused by hydrogen sulfide gas, which commonly occurs in sewage.

WTD Resiliency and Recovery Program: King County plans to invest \$2.7 million to assess and retrofit sewer infrastructure and buildings in preparation for potential seismic events. The program goal is to protect public safety by avoiding or minimizing critical system damage that could occur during a natural disaster.

Fremont Siphon Replacement Project: King County is budgeting \$12 million to begin construction on a new pipeline beneath the Lake Washington Ship Canal to carry untreated wastewater from Seattle's Fremont neighborhood to the West Point Treatment Plant in Magnolia. The current pipeline has been in service for more than 100 years.

Rainier Valley Wet Weather Storage Project: In 2016, King County is budgeting \$9.7 million to begin construction a new underground tank and sewer pipelines in Seattle's North Beacon Hill and Columbia City neighborhoods, which will control overflows of stormwater and sewage into the Duwamish River during heavy rains.

West Point Treatment Plant Improvements: King County plans to invest \$12 million on a number of improvements at its largest treatment plant. Projects include upgrading and replacing aging equipment to ensure reliable operation and continued compliance with permit conditions.



Murray Combined Sewer Overflow

Control Project: In 2016, King County will invest \$12.5 million to complete construction on an underground storage tank at its Murray Pump Station in West Seattle. The tank is designed to contain up to 1-million gallons of stormwater and wastewater during heavy rains, which will protect public health and the environment by controlling combined sewer overflows that occur near Lowman Beach Park.

Green infrastructure investments also support pollution control goals. King County has partnered with Seattle Public Utilities on the RainWise Program, which offers incentives to property owners who install rain gardens or cisterns that keep excess stormwater out of the sewer system.



Protecting our assets

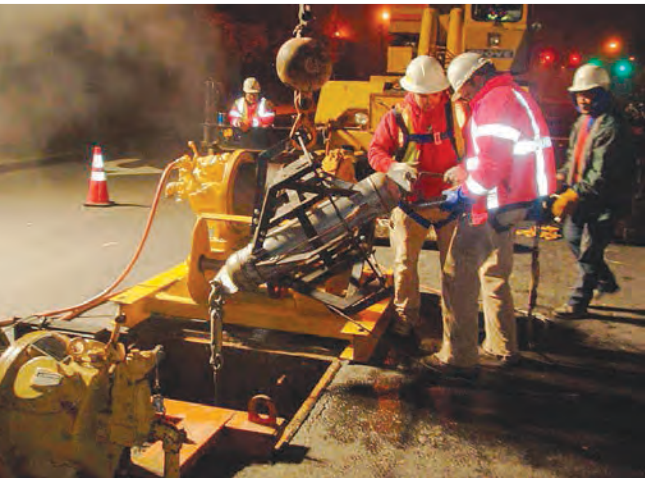
It would cost well over \$20 billion to build King County's wastewater system from the ground up today, and the value of our facilities as they now stand is estimated at about \$4 billion.

Naturally, we put a high priority on managing and maintaining our buildings, treatment plants, pump stations, manholes, pipelines, as well as the property surrounding them.

The county's Asset Management Program oversees inspection of the regional treatment system, repairing and replacing aging facilities and developing plans to address ongoing system issues.



One of our biggest ongoing asset management challenges is directly related to the age of parts of the collection system – pipe corrosion. Investments in repairing and rehabilitating these aging pipes will help prevent system failures, overflows and costly emergency repairs.



Sonar inspections and closed-circuit cameras help inspection crews detect pipe deterioration.



Employees install coatings, linings and sealants to extend the life of our pipelines and equipment.

Planning for Growth

Expanding the system to serve population growth entails long-range planning. It can easily take a decade or more between identifying the need for additional capacity to commissioning a brand new facility.



Because investments in wastewater infrastructure are significant, our system planning has checks and balances to ensure decisions reflect the interest of the regional ratepayers, who ultimately pay for these investments.

King County carefully reviews local comprehensive plans and compares growth projections to census data and population forecasts prepared by the Puget Sound Regional Council. The county also looks at its own wastewater flow and monitoring data, which has historically proved highly accurate and reliable.

The Wastewater Treatment Division regularly delivers reports on the status of its comprehensive plans to the King County Council and other stakeholders. The County Council presides over the budget process and votes to set sewer rates, providing additional oversight on financial matters.

Though clean water is our ultimate goal, the Wastewater Treatment Division also defines success by running a well-managed agency that meets or surpasses state and federal pollution control requirements.

Where does your money go?

King County's wastewater utility is entirely funded by the ratepayers who invest in our programs and services through their monthly rate and capacity charge bills. Service excellence through efficiency and prudent financial practices is also important to delivering ratepayer value.

Bond ratings

Moody's and Standard & Poor's reaffirmed the utility's strong credit ratings in 2016, citing consistent financial performance, a large and economically diverse service area, and satisfactory debt service coverage.

These favorable credit ratings lower the cost of borrowing by reducing the amount of debt service, which, in turn, reduces impacts to the rate.

In 2015 and early 2016, the division refinanced \$1.1 billion in bonds that will save \$225 million over the next three decades.

Since 2000, various refinancings of King County's bonds have saved the utility almost \$525 million in debt costs.

Revenues

King County's adopted wastewater budget for 2016 includes about \$366.9 million in revenue from the monthly sewer rate and about \$60.3 million in revenue from the capacity charge. The 2016 budget also includes about \$2.1 million from investments and about \$11.7 million from other income such as fees for industrial waste permits, septic waste processing and rate stabilization funds.

Expenditures

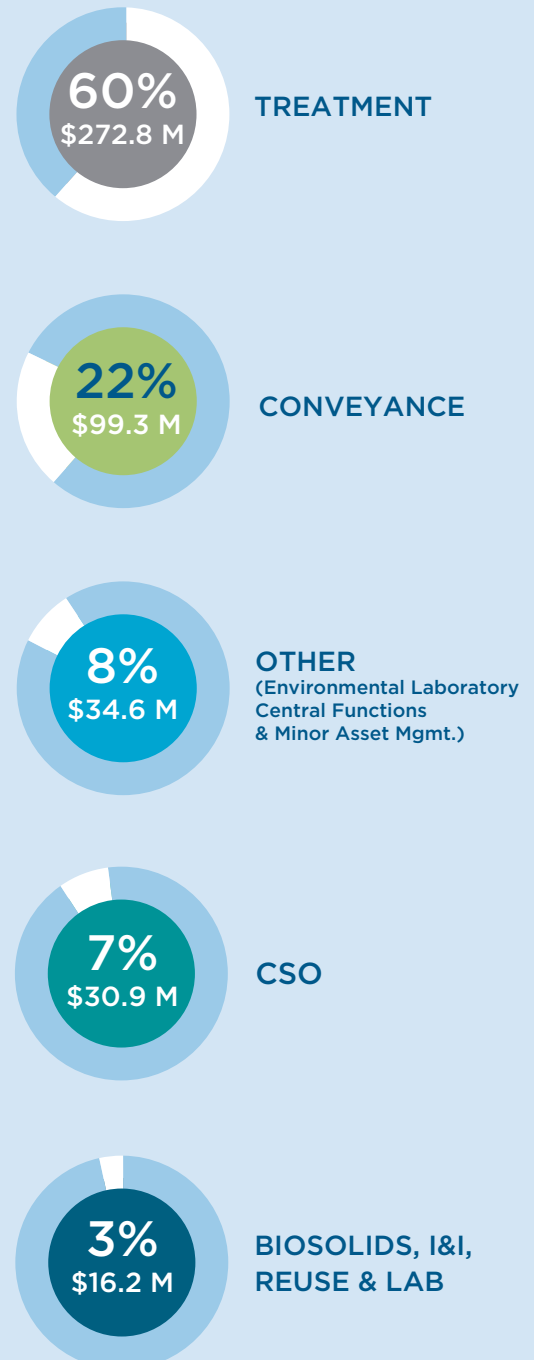
Of the total revenue (about \$453.9 million), the Wastewater Treatment Division is budgeted to spend about \$141.4 million to operate and maintain its facilities and about \$177 million for planning, designing and building facilities.

King County borrows bonds to fund the cost of construction projects under its capital improvement program.

In 2016, the \$453.9 million in operating revenue is allocated as shown in the figure to the right.

2016 EXPENDITURES

Operating revenue: \$453.9 million



The rate and capacity charge – what’s the difference?

INVESTMENTS IN INFRASTRUCTURE FUNDED BY THE RATE AND CAPACITY CHARGE

In 2017-18, the King County Executive will propose increasing the current \$42.03 monthly wholesale sewer rate by \$2.19, bringing this rate to \$42.22. The proposal will also recommend an increase in the capacity charge from the current rate of \$58.70 to \$60.80.

The rate increase will help cover the cost of the debt service on the bonds issued to pay for vital capital improvement projects and provide revenue to cover the cost of maintaining and operating our existing system. It will also enable repair and replacement of aging equipment and facilities so the system operates reliably and continues meeting stringent state and federal permit requirements.

The capacity charge increase will fund the cost to expand the system and build new facilities to serve our growing region.

The modest rate increase incorporates proposed changes in King County’s sewer utility financial policies that would reduce the Wastewater Treatment Division’s outstanding debt by \$582 million by 2030.

These changes would include more cash-financing for the division’s capital projects and paying off short-term debt earlier.

Continued investment in our clean-water infrastructure will ensure it continues to operate reliably and meets environmental standards, protecting our natural resources and quality of life for the next generation to enjoy.

The rate supports operation and maintenance

The monthly wholesale sewer rate paid by all customers generates the revenue needed to cover the cost of maintaining, operating and supporting our existing system and covering debt service on the bonds we issue to fund facilities currently in use.

The capacity charge supports system expansion

Since 1990, King County has levied a capacity charge on new connections to the sewer system that new customers pay in addition to their monthly sewer bill for a period of 15 years. The capacity charge covers the cost of new projects and system expansions to serve population growth. The Wastewater Treatment Division directly bills newly connecting customers for the capacity charge.

The capacity charge is billed monthly over 15 years, but property owners have many options for payment, including paying the balance in full at the time of purchase or paying it off early with no penalty.

Questions about the capacity charge?

Division employees are available to help property owners and real estate professionals better understand the capacity charge, when it might apply and the range of payment options available. Please call 206-296-1450 or 711 TTY, or visit us online at <http://www.kingcounty.gov/capacitycharge>.

About us

Headquartered in downtown Seattle, King County's Wastewater Treatment Division has been committed to protecting and improving water quality for 50 years. The agency employs about 600 people who plan, design, build and operate the treatment facilities. Our employees also enforce regulations to reduce harmful waste discharged to the system, and we educate the public and businesses on ways to protect water quality.

To our agency, success means clean water. It means honoring our legacy of environmental success while keeping a promise to maintain it for another generation.

It also means being fiscally responsible and accountable to the ratepayers we serve.

Continuous Improvement and Lean

King County Executive Dow Constantine's directive for Continuous Improvement empowers division employees to identify efficiencies that save money, streamline processes and deliver greater ratepayer value. Through Lean principles, employees and managers strive to work more effectively and maximize the value of existing resources. The division's Bright Ideas program encourages creative problem-solving throughout the organization, particularly among front-line employees who are often the first to spot opportunities for improvement. Over the past two years, the division's efficiency-driven culture saved ratepayers \$750,000.

Community Matters

The Wastewater Treatment Division offers many opportunities for people to be involved in upcoming projects and stay informed about clean-water issues.

Arrange a free tour of one of our treatment facilities for your school or community group, schedule a speaker for a neighborhood meeting, or get additional detail about projects, programs by visiting us online at www.kingcounty.gov/wtd or by calling 206-477-5371 or 711 TTY.



Awards

WTD earned awards recognizing its commitment to excellence in operations and project planning and delivery:



Carnation Treatment Plant



Brightwater Education & Community Center

Brightwater Education & Community Center, 2015 Public Education Program of the Year; WaterReuse

West Point Treatment Plant Energy Purchasing Partnerships, 2015 Outstanding Case Study Award; Sustainable Purchasing Leadership Council

South Magnolia CSO Control Gravity Sewer Pipeline, Honorable Mention 2015 New Installation Project of the Year; Trenchless Technology

Carnation Treatment Plant, 2014 Outstanding Wastewater Plant Award; Washington State Dept. of Ecology

Vashon Treatment Plant, 2014 Outstanding Wastewater Plant Award; Washington State Dept. of Ecology

South Treatment Plant, 2014 Outstanding Wastewater Plant Award; Washington State Dept. of Ecology

West Point Treatment Plant, Peak Performance Platinum Award (for 2014 calendar year); National Association of Clean Water Agencies (NACWA)

South Treatment Plant, Peak Performance Platinum Award (for 2014 calendar year); National Association of Clean Water Agencies (NACWA)

Brightwater Treatment Plant, Peak Performance Silver Award (for 2014 calendar year); National Association of Clean Water Agencies (NACWA)

Carnation Treatment Plant, Peak Performance Gold Award (for 2014 calendar year); National Association of Clean Water Agencies (NACWA)

Vashon Treatment Plant, Peak Performance Gold Award (for 2014 calendar year); National Association of Clean Water Agencies (NACWA)

Willows Run Golf Course (partner with WTD), 2015 Green Globe Award: Leader in Beneficial Use of Recycled Water; King County



Brightwater Education & Community Center

South Treatment Plant

Ratepayer Report

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Creating Resources from Wastewater