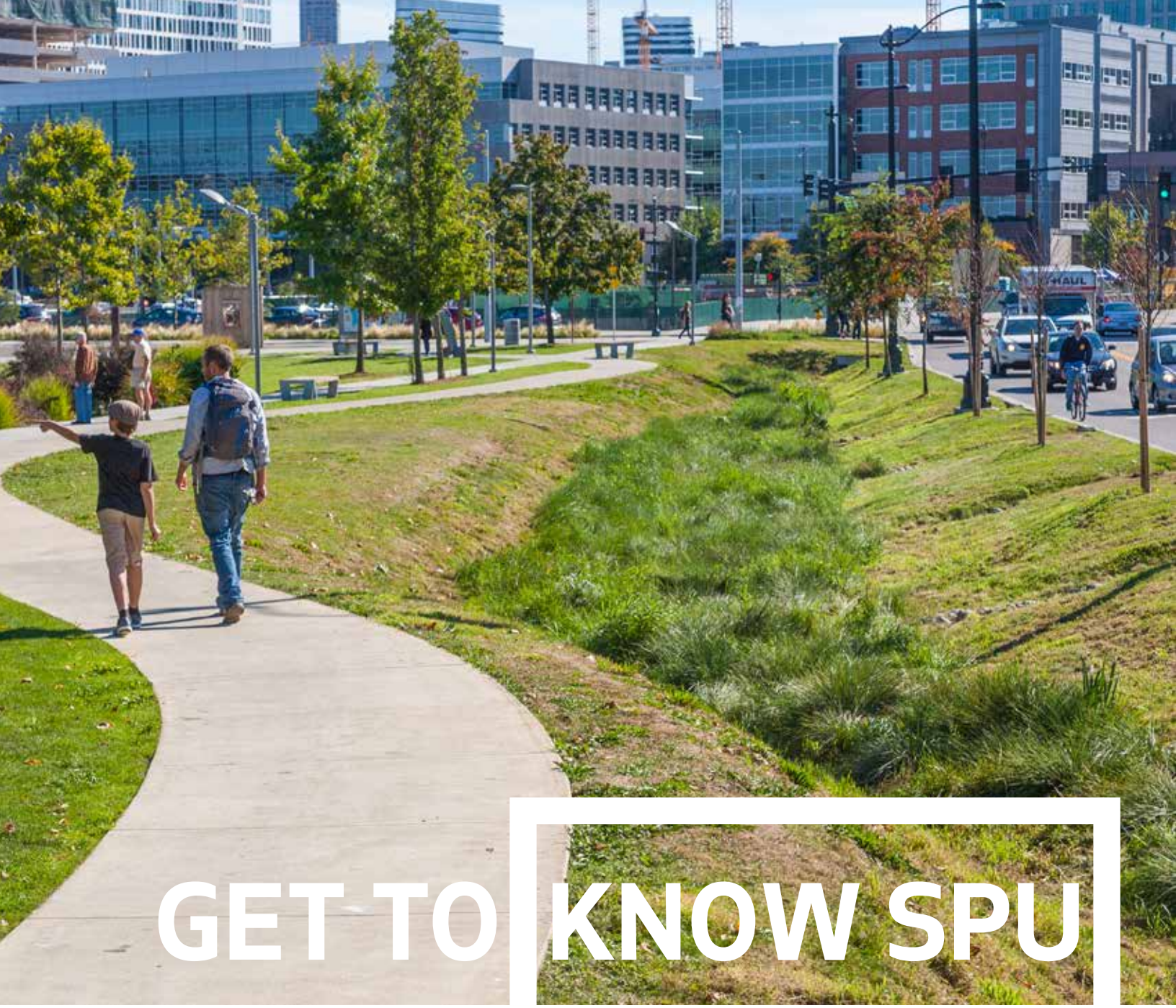
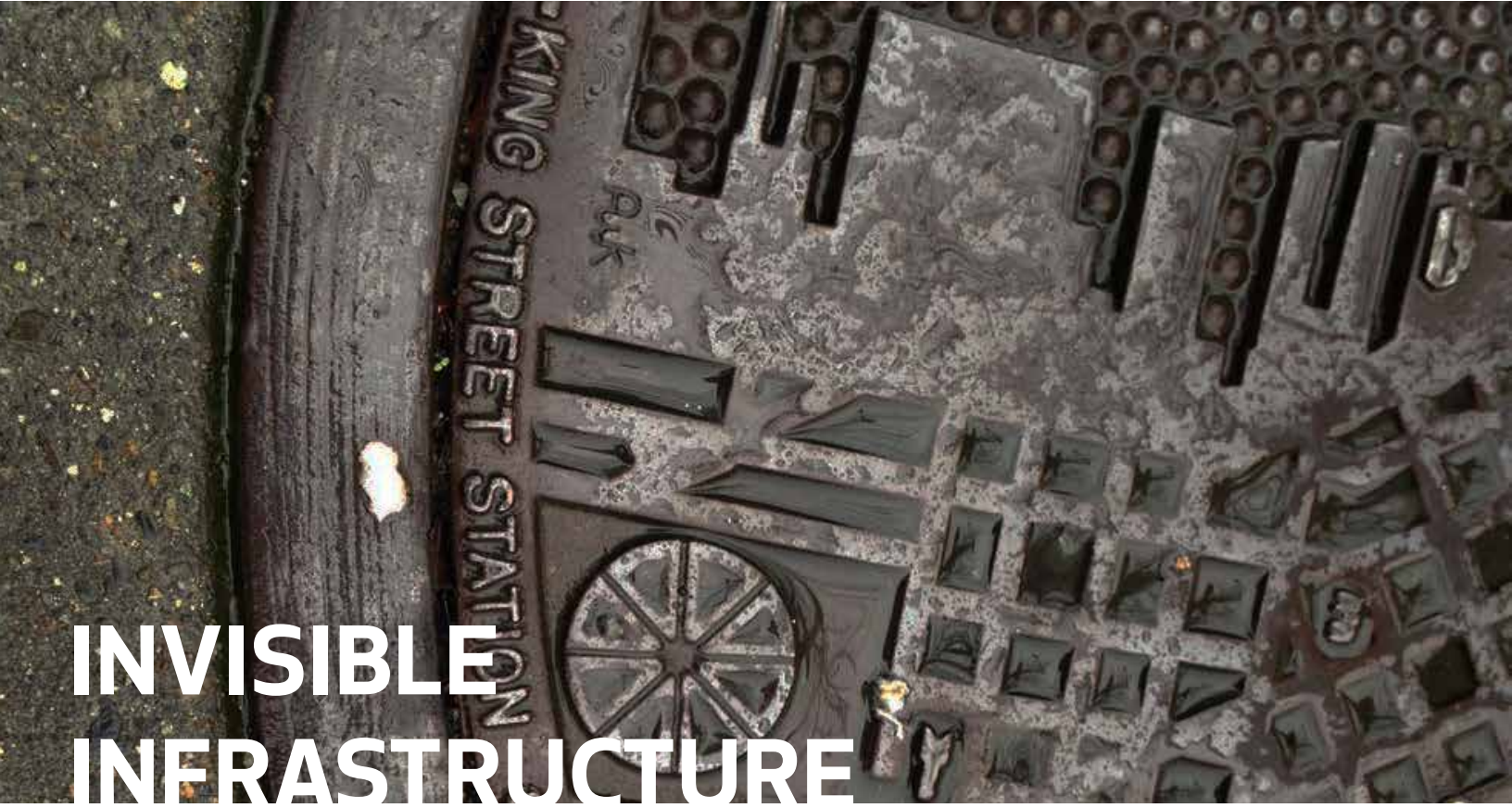


GET TO KNOW SPU

YOUR DRAINAGE AND WASTEWATER SERVICES

Seattle Public Utilities

SHAPE OUR WATER



INVISIBLE INFRASTRUCTURE

Water defines how Seattle looks, feels, and functions in obvious and subtle ways. Every day, we interact with water by crossing canals, lakes, and even parts of Puget Sound to support our livelihoods and to connect with our communities. Water enters our homes and businesses as pure, clean drinking water and travels down our drains and toilets as wastewater. When it rains, we see water flowing off roofs, across streets and gardens, and into storm drains as stormwater.

The water that flows in, out, and around our city relies on vast drainage and wastewater systems.

In our daily lives, these systems often go unnoticed as most drainage and wastewater infrastructure, like pipes and tanks, are located underground; other parts of the system appear as subtle features in the landscape, like drain grates, ponds, creeks, or small roadside gardens. While most people in Seattle may not give them much thought, our drainage and wastewater systems work very hard – some for over 100 years – to keep water flowing and to maintain a healthy and clean environment.

As we look forward to the future, Seattle will face huge challenges from managing and reducing water pollution and providing excellent service to our ever-growing population to combating climate change impacts. SPU wants to continue to prioritize community and environmental health for the years to come. To do so, we are developing a plan to identify the best infrastructure investment strategy to achieve the greatest environmental and community benefits for Seattle at the lowest cost to our customers.

Through our Drainage and Wastewater Line of Business, we are dedicated to:

Providing system management and improvements that **ensure our waterbodies are clean for everyone** to enjoy. As climate change impacts increase in the coming decades, this task becomes even more important.

Centering racial equity into our work so that the distribution of services and investments to repair, replace and build new infrastructure will not perpetuate disproportionate access or barriers to our services.

Ensuring that our services benefit all of Seattle's communities **now and in the future.**


Image by Ryan Wilson

DRAINAGE AND WASTEWATER INFRASTRUCTURE ORIGINS

The colonization of Seattle, the traditional land of the Duwamish People and Puget Sound's Coast Salish Tribes, brought a population boom to the region. Much like the rest of the United States during the 1800s, industrial activity heavily impacted and forever altered the land and surrounding water bodies.

Industrialization and population growth increased water consumption. Water was simultaneously a source for food, recreation, drinking, and waste disposal. As a result of the close proximity and multi-use of nearby waterways, health hazards emerged. In Seattle the contaminated drinking water and exposure to polluted waters made disease outbreaks, including typhoid, diphtheria, and cholera, increasingly common. Like other cities around the nation during the 1800s, the local government in Seattle began constructing sewers in the city to address this public health crisis.

While waterborne diseases aren't a concern in Seattle's drinking water today, SPU's commitment to protect public health and environmental stewardship remains the bedrock of our work. As part of addressing urban flooding and water quality for aquatic health and endangered species, we utilize green stormwater infrastructure (GSI) to improve human health and wellbeing while preventing pollutants from entering our waterbodies. Utilizing GSI to provide the co-benefits of pollution prevention, improving air quality, and connecting people to nature is a part of **our continued commitment to stewardship and health** that guides us as we plan for future challenges.

At Seattle Public Utilities, we are committed to protecting our environment and the communities we serve.

NUTS & BOLTS OF OUR SYSTEM

Everyone in Seattle relies on drainage and wastewater systems to help keep our waterways clean and prevent our streets, homes and businesses from flooding. To understand drainage and wastewater system issues and what Seattle Public Utilities is doing to address them, it helps to know more about these crucial citywide systems.

STORMWATER

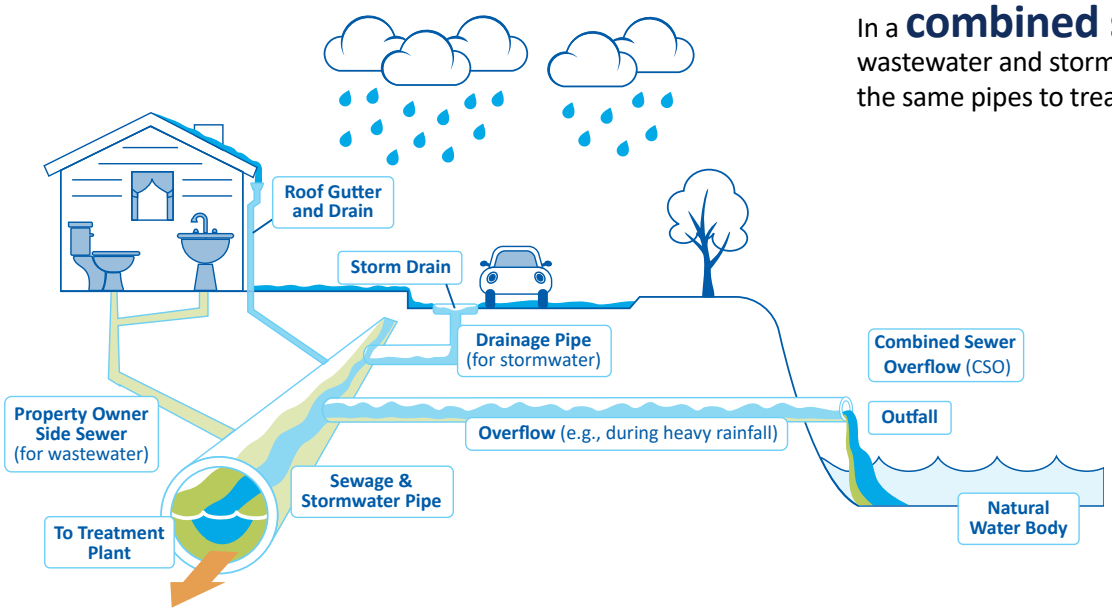
Stormwater is **rain and melting snow** that runs off rooftops, lawns, streets, sidewalks, bridges, and parking lots. While some stormwater filters through soil and becomes groundwater or flows into waterbodies and floodplains, most stormwater travels through the drainage system's ditches, culverts, pipes, ponds and rain gardens and is eventually released into creeks, lakes or waterbodies that surround Seattle.

WASTEWATER

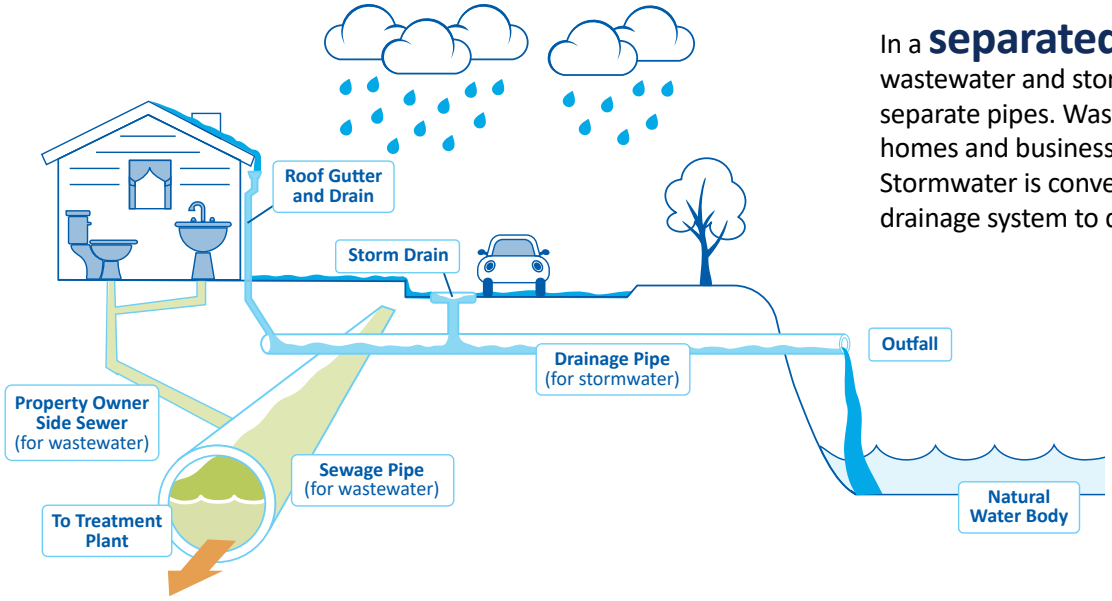
Wastewater's **journey begins at drains** in and around households and businesses, like sinks, showers, toilets, washing machines, and dishwashers. Wastewater moves through private side sewers to the wastewater system's pipes, pump stations, and storage tanks. Most of Seattle's wastewater enters very large King County Wastewater Treatment Division pipes and travels to King County Wastewater Treatment Division's West Point Treatment Plant where it is treated and is released into the Puget Sound.

Seattle has three types of systems to move, or *convey*, stormwater and wastewater: a combined sewer system, a separated sewer system, and a partially separated system. While there are some areas of overlap, **different parts of the city have different types of systems**.

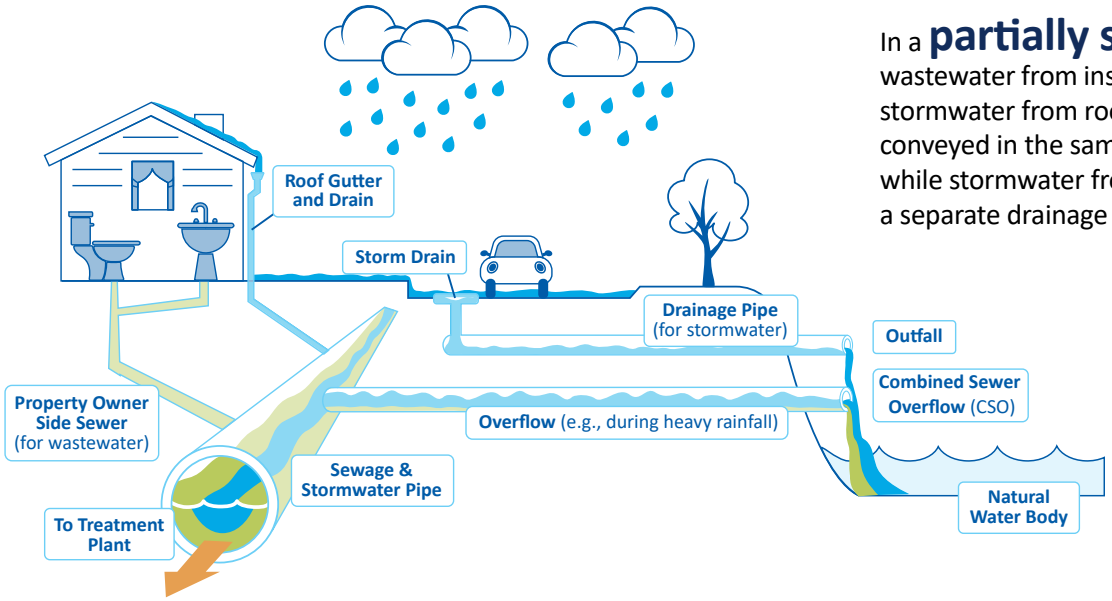
During heavy wet weather conditions, the combined sewer system can be overwhelmed with stormwater. When the system is overwhelmed, the untreated mixture of sewage and stormwater overflows at designated relief points called outfalls; these events are known as combined sewer overflows (CSO). While this helps to keep combined sewage from overflowing in streets or backing up into homes and businesses, it contributes pollution to Seattle's waterbodies.



In a **combined sewer system**, wastewater and stormwater travel in the same pipes to treatment plants.



In a **separated sewer system**, wastewater and stormwater travel in separate pipes. Wastewater is conveyed from homes and businesses to treatment plants. Stormwater is conveyed through a separate drainage system to drainage outlets.



In a **partially separated system**, wastewater from inside homes and businesses, and stormwater from roof gutters and downspouts are conveyed in the same pipes to treatment plants, while stormwater from streets is conveyed through a separate drainage system to drainage outlets.

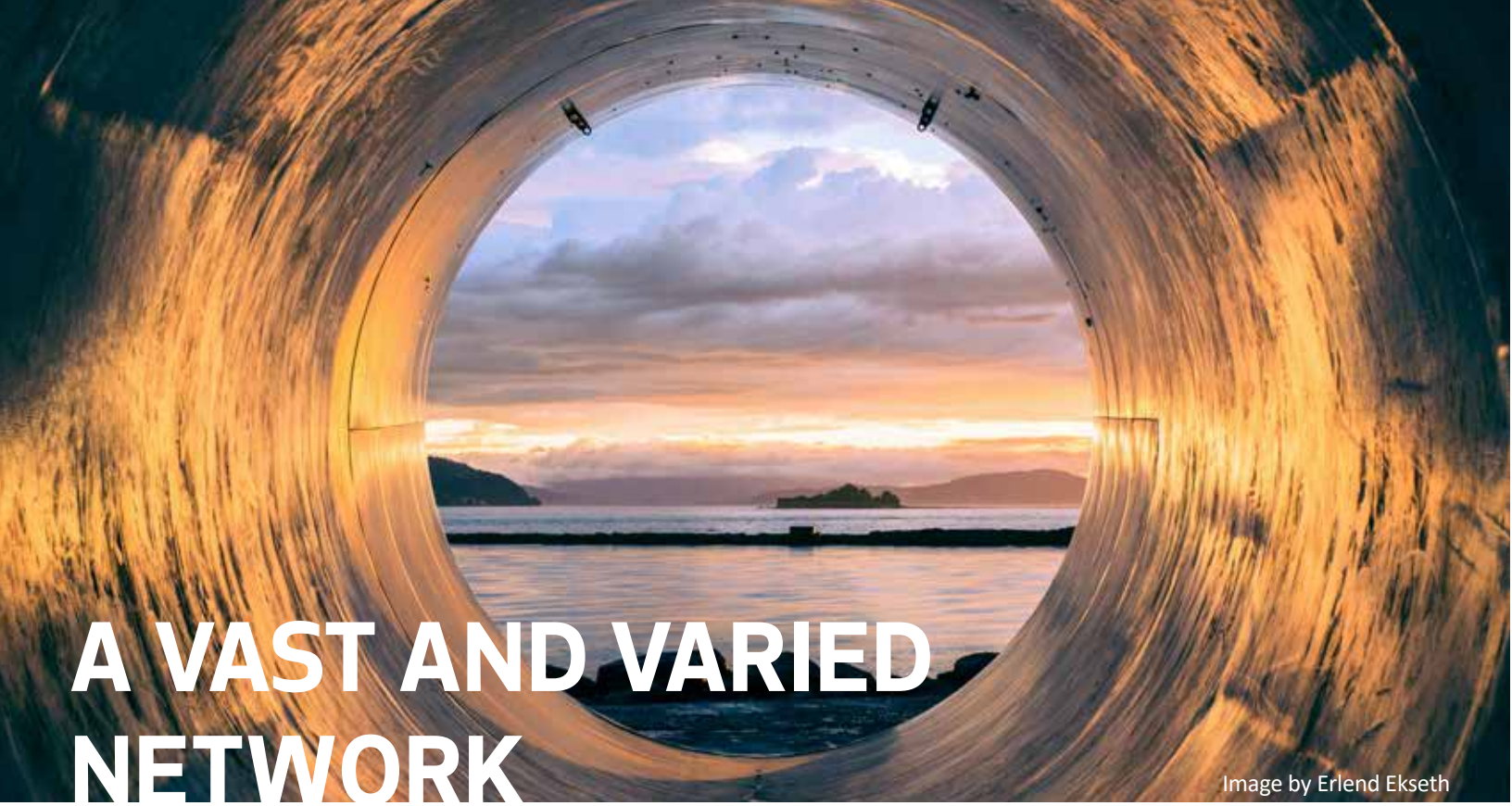
SPU takes stewardship of Seattle's environment seriously and is committed to keeping waterways and habitats safe and healthy.

FAST FACTS

33% of Seattle's wastewater system is combined

27% of Seattle's wastewater system is fully separated

40% of Seattle's wastewater system is partially separated



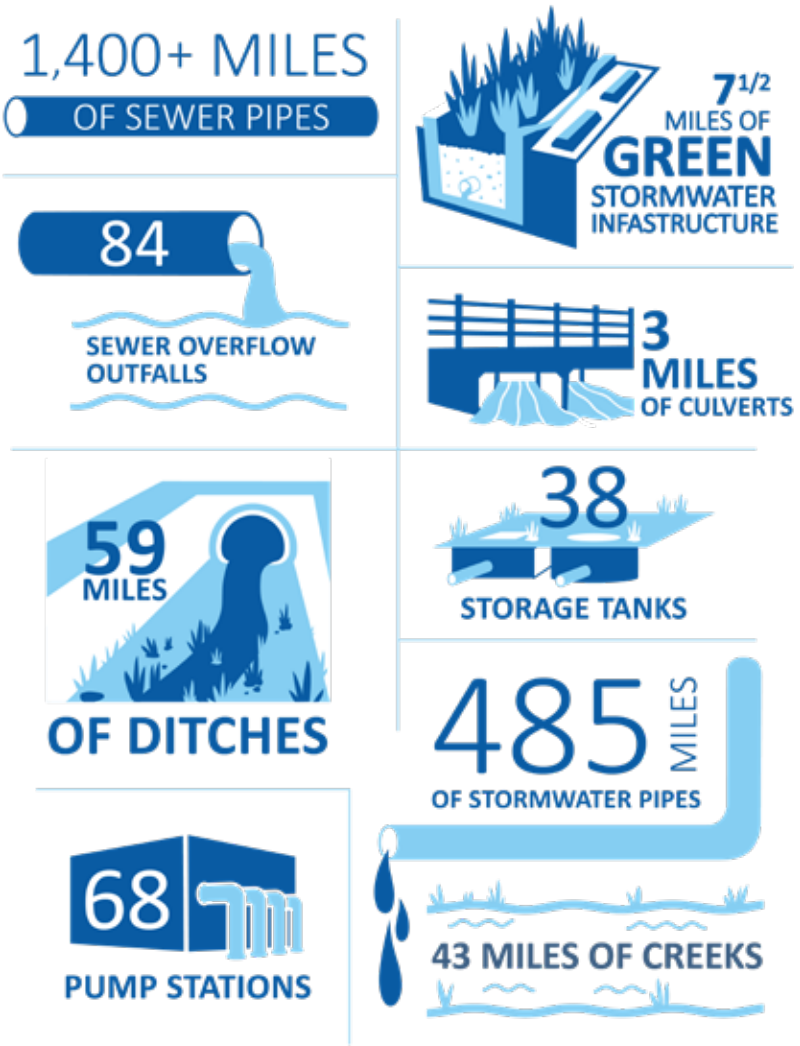
A VAST AND VARIED NETWORK

Image by Erlend Ekseth

Water's journey through the city – from our homes and off our sidewalks and streets – to receiving waterbodies is not simple. SPU owns and operates 1,400+ miles of wastewater pipe, 400+ miles of stormwater pipes, 25 miles of drainage ditches, 68 pump stations, as well as other facilities. Water's journey also relies on parts of the natural ecosystem like creeks, lakes, and wetlands.

SPU's system also includes **Green Stormwater Infrastructure** (GSI) to convey, slow, and/or store stormwater and filter out pollutants picked up from the road or sidewalk. GSI uses above ground landscape-based systems to retain and detain stormwater.

Private property owners within Seattle also play a role in managing the city's drainage and wastewater. Seattle has over 5,000 miles of privately owned side sewer pipes that property owners maintain, repair, and replace. Private property owners also manage the stormwater from their property.



DRAINAGE & WASTEWATER CORE SERVICES

Today SPU builds, operates, and maintains Seattle's stormwater and wastewater infrastructure to promote public health and protect the environment. We are committed to providing essential public health and safety services and ensuring our environment and water bodies are healthy and clean.

Fulfilling this commitment is no small task. SPU's drainage and wastewater teams –

- Maintain and improve systems to provide reliable service
- Reduce pollutants in stormwater with system improvements and maintenance
- Help homes and businesses reduce sources of pollution
- Prevent and respond to sewer backups and overflows
- Prevent and respond to flooding
- Monitor systems to identify any potential problems
- Meet federal, state, and local water quality standards
- Prioritize system improvements in communities that need investments the most

OUR PARTNERS, HELPING US DO MORE

Taking care of our drainage and wastewater system is not an easy task but, with the help of Seattle residents, other city departments, and King County Wastewater Treatment Division, our community can prevent and reduce pollution that enters the system, and our environment. Collaboration means SPU can extend its services even farther. For example, SPU sweeps over 90% of Seattle's arterial streets through our partnership with Seattle Department of Transportation. As a result, each year, roughly 320,000 pounds of pollutants are prevented from potentially entering our local waterways. Our partnership with King County Wastewater Treatment Division is especially important. SPU and King County Wastewater Treatment Division manage a single, dynamic stormwater and wastewater system that is owned and operated by the two agencies. SPU and King County Wastewater Treatment Division routinely share data and system information to prevent flooding and sewer backups and protect major treatment facilities, human health, and the environment.

Beyond our pipes and drains, we also help our communities be good stewards of our city and its waters.

RainWise, a joint program by King County Wastewater Treatment Division and SPU, supports private property owners to install green infrastructure on their property. Collectively, 25 million gallons of stormwater is managed by RainWise installations every year.

Trees for Neighborhoods helps Seattle residents plant trees in their yards and along the street. Since 2009, over 11,000 trees have been planted across Seattle, making our streets more walkable, our neighborhoods healthier, and our air and water cleaner.

Salmon in the Schools is a partnership between SPU, Seattle Parks and Recreation, Seattle Public Schools, Washington Department of Fish and Wildlife, Fauntleroy Watershed Council and Carkeek Watershed Community Action Project. Every year, around 70 schools raise young salmon and learn about how humans affect salmon and our local waterways.

Our Pollution Prevention programs educates Seattle residents and business owners to keep fats, oils, grease, and other waste items, like wipes, out of the city's drainage and wastewater systems to avoid sewer backups or overflows.

OUR INFRASTRUCTURE'S FUTURE

The Pacific Northwest's climate will change significantly in the future. Projections show that we will see more frequent and more intense large storms with heavier rains. These kinds of storms can inundate sewers, cause combined sewage overflows (CSO), flush pollutants and contaminants into Seattle's waterways, and cause public safety issues. Rising sea and groundwater levels can further stress drainage and wastewater system with seepage, saltwater intrusion, and corrosion. Left alone, these conditions could cause widespread system failures that would threaten public health, safety, and the environment. For SPU, **climate change is one of our next great challenges.**

As our drainage and wastewater systems age, our climate changes, and we strive to further reduce pollution, SPU is looking for creative ways to solve problems. In 2020, we launched Shape Our Water, a 50-year plan for Seattle's water resilience. Shape Our Water goes beyond pumps and pipes to guide Seattle towards becoming a more resilient, innovative, and equitable city, with a drainage and wastewater system that creates meaningful benefits for all residents. We invite everyone to imagine, plan for, and design innovative solutions for Seattle's future drainage and wastewater system that do *more* for residents and our city.

We're here to help.

To report spills, water leaks, sewer backups or flooding, please call our 24/7 Operations Response Center at (206) 386-1800.

Water shapes our lives.

Seattle Public Utilities

700 5th Avenue
Suite 4900
Seattle, Washington 98104
206-684-3000

Seattle Public Utilities

SHAPE OUR WATER