



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BIANNUAL REPORT SPRING 2023

**COMBINED SEWER OVERFLOW (CSO)
CONTROL ACTIVITIES**

CLEAN RIVERS PROJECT NEWS



DC Water tunnel to restore Potomac River

DC Water has been engineering an incredible network of tunnels under the District, and now has another one on the way. They are larger than Metrorail tunnels and run deep below ground, under streets, parks, and the rivers that border the city. These engineering marvels capture and carry the mixture of stormwater runoff and wastewater, called combined sewage, to DC Water's treatment plant, keeping it out of our waterways, streets and basements.

Civil engineers in the early 20th century designed combined sewer systems so that when rain events exceed the capacity of the sewer system, the combination of stormwater and sewage overflows directly into the District's waterways. There are 10 of these overflow locations—called outfalls—on the Potomac River. In a year of average rainfall, about 74 discharges from these flow into the Potomac, totaling roughly 654 million gallons. DC Water's newest tunnel, the Potomac River Tunnel (PRT), will reduce the number of events to four—and the volume by 93 percent—in an average year. The project is set to break

ground in 2024 and will improve the health of the Potomac River for the benefit of all.

This tunnel is routed to intercept CSOs along the riverfront and convey captured flows to the completed portion of the tunnel system near Joint Base Anacostia-Bolling (JBAB). From there, all the captured combined sewage flows by gravity to the Blue Plains Advanced Wastewater Treatment Plant for treatment. In advance of tunnel construction, engineers performed subsurface investigations to characterize the soil, rock, and groundwater conditions for the project. Crews are now bringing electric power and utilities to future work sites. Tunnel construction begins in 2024 with mobilization at West Potomac Park.

The tunnels are the cornerstone of DC Water's Clean Rivers Project, designed to protect the Anacostia River, Rock Creek and Potomac River. When fully completed, the numerous projects will reduce combined sewer overflows (CSOs) by 96 percent in an average year of rain system-wide.

Bringing a Tunnel to Life



Photo courtesy of KristaSchlyer.com

About 100 feet below the surface of Ivy City, Edgewood, LeDroit Park, Bloomingdale, and Shaw, DC Water crews are completing the work to connect the Northeast Boundary Tunnel (NEBT) to the existing sewer system. DC Water will place the tunnel in operation during the summer of 2023 after completing tunnel commissioning and startup. **Commissioning** is the process of assuring all the components of the tunnel will function together as a cohesive

system. The NEBT will lessen chronic flooding in areas of Northeast and Northwest DC while improving the water quality of the Anacostia River by reducing combined sewer overflows.

The first phase of commissioning began when DC Water temporarily took the First Street Tunnel (FST) out of service in December 2022, with a return to service date in February 2023. The purpose was to clean the tunnel and demolish certain components before connecting the First Street Tunnel to the NEBT.

One of the last steps is to remove the temporary bulkhead at the connection between the first phase of the Anacostia River Tunnel (which is already in service) and the NEBT. Then DC Water will activate structures at Mt. Olivet Road NE, Rhode Island Avenue NE, 4th Street NE, T Street NW, Florida Avenue NW, and R Street NW that divert flow into the tunnel system during large rain events. The affected areas will be restored with repaved roads, sidewalk repair and new trees. When everything is complete, the full 13.1-mile tunnel system will be ready to capture 98 percent of combined sewer overflows and bring substantial improvement to neighborhoods with chronic flooding.

What would nature do?

The tunnels and sewer separations are one way to reduce combined sewer overflows (CSOs). Another method is to use plants, trees, gravel storage beds and other measures to mimic natural processes that infiltrate the rainwater into the ground or otherwise clean, cool and slow down the runoff. Called **green infrastructure**, these systems include pervious pavement, bioretention (rain gardens), rain barrels and downspout disconnections, as well as other green practices.

DC Water is currently constructing its third large-scale green infrastructure project. It is located in the Rock Creek sewershed and named Project B. Construction began in 2022 to manage 22 impervious acres using green infrastructure. Approximately one-third of the project is complete and the remaining construction of permeable alleys and planter bioretention is slated for completion in late 2023. Additional impervious acres will be managed through future green infrastructure projects.

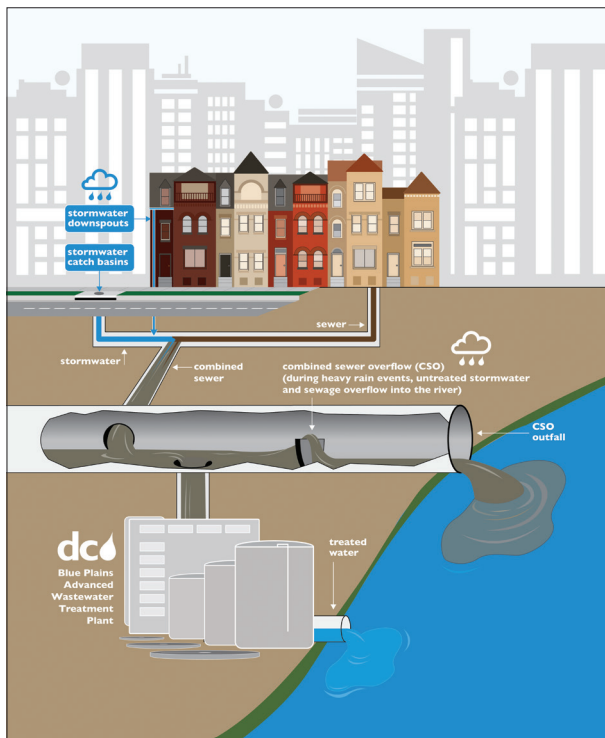
These measures, in conjunction with the engineering (gray) solutions will be completed in 2030, reducing CSOs into Rock Creek by 90 percent in an average year of rain. For more information, visit the project website at: dcwater.com/rockcreekgreenb.



FAQs About the Combined Sewer System

What is a Combined Sewer?

A combined sewer is a single pipe that carries both sanitary wastewater and stormwater runoff. Many older cities in the United States are served by combined sewers. In the District, the combined sewer system was designed and built by the U.S. Army Corps of Engineers. Modern practice is to build two pipes in the street—one for stormwater runoff, and one for wastewater from homes and businesses.



What is a CSO and why does it occur?

A CSO is a combined sewer overflow. During dry weather, sewage from homes and businesses is conveyed to the District's wastewater treatment plant at Blue Plains, where the wastewater is treated to remove pollutants before being discharged to the Potomac River. During certain rainfall conditions, the capacity of a combined sewer may be exceeded. When this occurs, the excess flow, a dilute mixture of wastewater and stormwater runoff, is discharged to the Anacostia River, Potomac River, Rock Creek and tributary waters. The Federal Clean Water Act allows CSOs, but the Environmental Protection Agency (EPA) requires communities to develop a plan to address overflows. There are 47 potentially active CSO outfalls listed in DC Water's existing discharge permit from the EPA.

When do CSOs occur?

CSOs occur during wet weather and are more frequent in wet years than dry years. During years with average rainfall, DC Water estimates that combined sewers overflow into the Anacostia River about 20 times annually and the Potomac River about 77 times annually, spilling approximately 391 million gallons into the Anacostia and 677 million gallons into the Potomac. Rock Creek averages 32 CSO events and 35 million gallons of overflow a year.

Where are CSO Outfalls?

There are 10 CSO outfall locations on the Potomac River, 15 on the Anacostia River and 23 along Rock Creek and its tributaries. DC Water has posted signs for each outfall location.

What are the possible public health impacts of CSOs?

CSOs may pose a danger to the public because of the rapid flow of water exiting the outfalls and the potentially harmful substances it may contain. The public is advised to stay away from any sewer pipe discharge. CSOs could affect the receiving waters for up to 24 hours during small rainstorms and for up to three days when it rains one inch or more.

What are the environmental impacts of CSOs?

CSOs can adversely affect the quality of rivers and streams by contributing to high bacterial levels and low dissolved oxygen levels, which are harmful to fish and other aquatic life.

What is a Dry Weather Overflow (DWO)?

In dry weather, sanitary wastewater normally flows to the Blue Plains Advanced Wastewater Treatment Plant through pipes with regulators. During wet weather, regulators are designed to let the excess flow discharge directly to a river or creek. If regulators become blocked by debris or trash, wastewater can also overflow during dry weather. This is called a dry weather overflow (DWO). DC Water has an intensive maintenance and inspection program to prevent DWOs from occurring. If you see a CSO outfall discharging during dry weather, call DC Water at (202) 612-3400.

Where can you get more information?

You can learn more by visiting DC Water's website at dcwater.com/cleanrivers. You may also contact DC Water's Office of Marketing and Communications at (202) 787-2200.

The complete text of the Long Term Control Plan for Combined Sewer Overflows can also be found on DC Water's web site at dcwater.com/FinalLTCP.



**ANACOSTIA
WATERSHED
SOCIETY**

Celebrate Earth Month by participating in a river or stream clean-up event. The Anacostia Watershed Society will host one on April 22. Visit bit.ly/AWSCleanup for more information. You can also check our event calendar for other Earth Month cleanups – you might even see Wendy the Waterdrop!

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You can help improve DC's waterways

Drain the Rain, DC Water's Downspout Disconnection Program, is a great way for residents to help improve water quality in Rock Creek—and the next opportunity is right around the corner. The 7th year of **Drain the Rain** launches this spring. It's a voluntary program providing free downspout disconnections and a rain barrel to residents with eligible downspouts in the Rock Creek project area. DC Water will disconnect the downspout from the sewer system and connect it to the rain barrel—all for free. Directing stormwater into the yard or rain barrels

minimizes the volume going into the sewer system, thereby reducing combined sewer overflows (CSOs) to the creek.

Program sign-up and downspout disconnections will occur between March and August 2023. Staff from DC Water's contractor, Rock Creek Conservancy, will visit residential homes in the 2023 project area to evaluate eligibility and answer questions. They will focus on homes within this area, but any home within the overall **Drain the Rain** area is eligible for evaluation.



DC Water has disconnected 468 downspouts and provided 280 rain barrels to residents since the program began in 2017. For more information, visit the project website at: dcwater.com/draintherain.



DC Water's fine screens capture solids

Fight dirty – keep our rivers clean

Storm drains and catch basins move water off sidewalks and streets into the sewer system to prevent flooding. Trash and debris on the ground and in the street flow into the drains along with rainwater. This is the origin of much of the trash that accumulates along the Anacostia's riverbanks.

Since going on-line in 2018 the Anacostia River Tunnel (ART) has captured nearly **15 billion gallons** of stormwater flow and more than **9,000 tons** of trash, debris and other solid materials.

You can help! Please use receptacles and dispose of trash properly to improve water quality and reduce the load on the tunnel system. Let's work together to keep the Anacostia trash free!



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1385 Canal Street, SE | Washington, DC 20003

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