

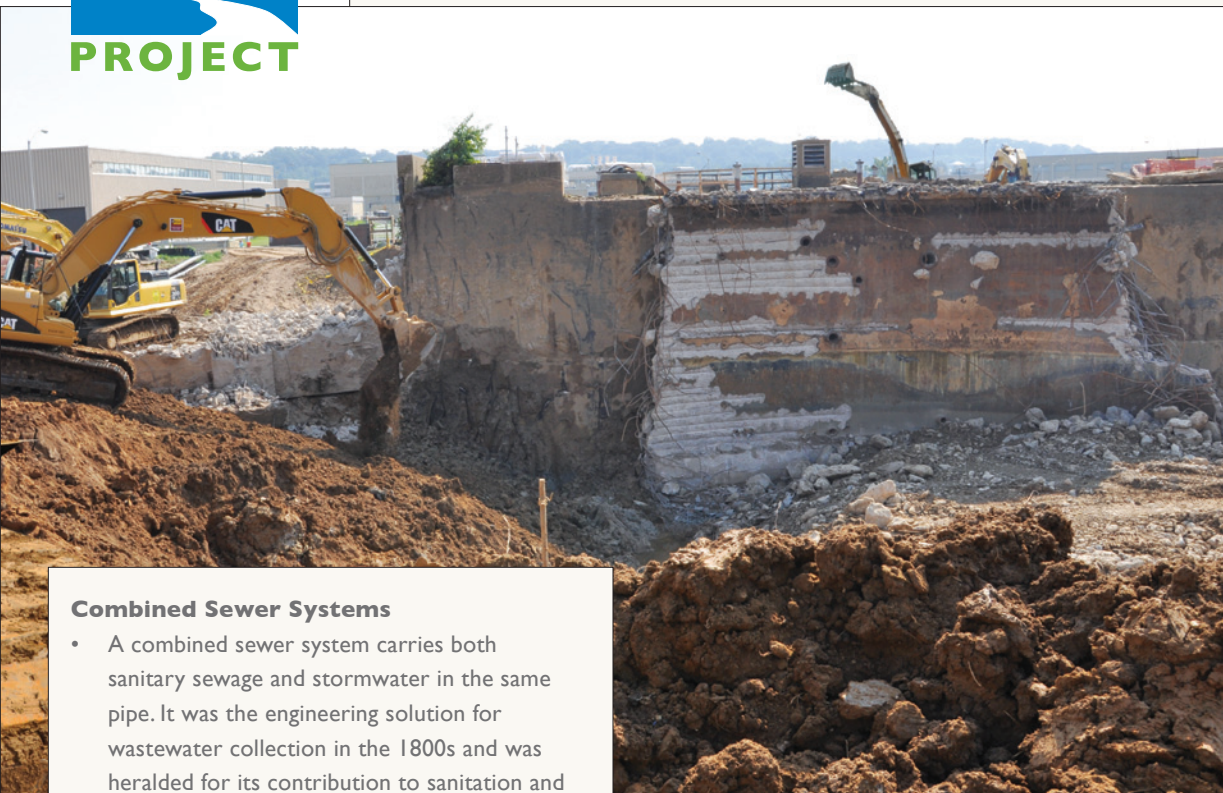


DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

**BIANNUAL REPORT OCTOBER 2010**

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

**UPDATE**



### **Combined Sewer Systems**

- A combined sewer system carries both sanitary sewage and stormwater in the same pipe. It was the engineering solution for wastewater collection in the 1800s and was heralded for its contribution to sanitation and reducing communicable diseases.
- About a third of the District of Columbia is served by a combined sewer system.
- A combined sewer system works well in dry weather, but during heavy rain events, the large volume can exceed the capacity of the system. Rather than having this combined sewage back up into streets and basements, the system was designed so the mixture overflows into local waterways. This is called a combined sewer overflow (CSO) event.
- CSOs can harm water quality in our rivers because the mixture is untreated and can carry bacteria and pollution (See FAQs, pg. 3).
- Several years ago, DC Water initiated a plan to reduce CSOs to the District's waterways.
- The project is now called the DC Clean Rivers Project (See DC Clean Rivers Project, pg. 2).

### **DC Water Begins Construction for Combined Sewage Treatment on Blue Plains Plant**

Five years ago, the District of Columbia Water and Sewer Authority (DC Water) entered into a consent decree with the Department of Justice, the United States Environmental Protection Agency (U.S. EPA) and the District of Columbia to reduce combined sewer overflows (CSOs) to the Anacostia and Potomac Rivers and to Rock Creek. The plan to accomplish this reduction is known as the DC Clean Rivers Project and DC is one of 750 cities nationwide to be required by law to implement such a plan.

DC Water completed the initial part of the plan, called the Nine Minimum Controls, which have

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reduced CSOs by nearly 40 percent already. These controls included improvements to pumping stations, placing inflatable dams inside the sewers, installing tide gates at the CSO outfalls and other measures.

Now comes the larger, more comprehensive portion of the Clean River Project— an enormous tunnel system that runs deep under the District, bringing combined sewage to the Blue Plains Advanced Wastewater Treatment Plant to be treated before being discharged back to the Potomac.

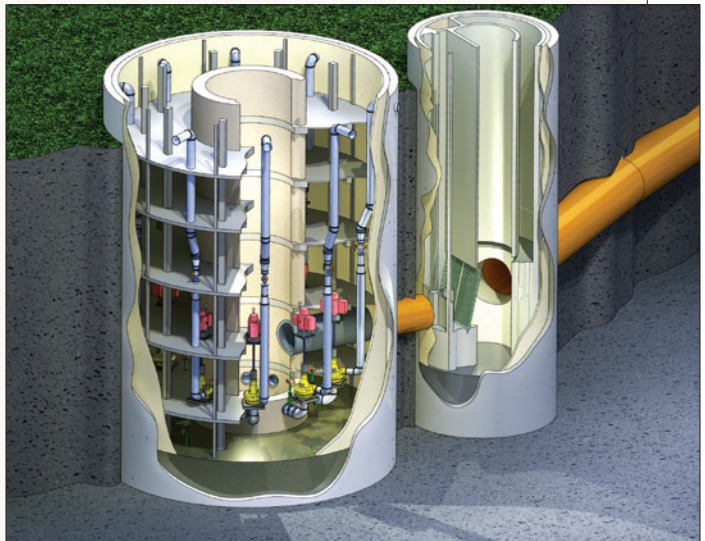
The tunnels will be 23 feet in diameter (as measured on the inside) and will be built between 100 and 120 feet below ground. This is a massive engineering feat that will take nearly 15 years to complete, though the Anacostia River will benefit starting in 2018. The entire DC Clean Rivers Project carries a \$2.6 billion pricetag.

DC Water is clearing space now at Blue Plains to build the shafts that begin the tunnel system northward.

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**Clean Rivers Project Schedule:**

<b>2011 May</b>	Notice to Proceed on first tunnel
<b>2011 July</b>	Start construction
<b>2015 March</b>	Complete tunnel construction on Blue Plains Tunnel (first tunnel segment)
<b>2015 January</b>	Construction of tunnel dewatering pump station, enhanced clarification facility (ECF)
<b>2018 March</b>	Complete construction of tunnel dewatering pump station, ECF



Renderings: Blue Plains combined sewage collection shafts.

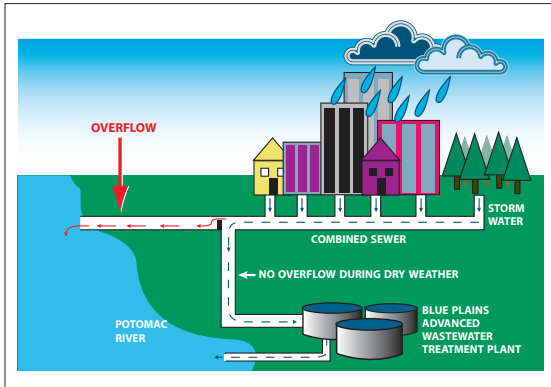
**CSO LTCP equals Clean Rivers for DC**

For several years, the DC Water and Sewer Authority has referenced its huge CSO project as the Combined Sewer Overflow Long Term Control Plan (CSO LTCP). In presenting the plan to community and environmental groups, we have recognized that the name is lengthy and the acronyms don't convey the benefits this project brings to the region. Therefore we have renamed it the Clean Rivers Project. The new logo and tagline better reflect the purpose of the project— "Restoring our Rivers, Protecting our District."



## 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 US 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 53 CSO outfalls listed in DC Water’s existing discharge permit from the EPA.

**Where are CSO Outfalls?** There are 10 CSO outfall locations on the Potomac River, 15 on the Anacostia River and 28 along Rock Creek and its tributaries. DC Water has posted signs for each outfall location.

**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 and Potomac rivers about 75 times annually, spilling nearly 1.5 billion gallons into the Anacostia and 850 million gallons into the Potomac. Rock Creek averages 30 CSO events and 52 million gallons of overflow a year.

### 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 is 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/cso](http://dcwater.com/cso). You may also contact DC Water Public Affairs at (202) 787-2200.

The complete text of the Long Term Control Plan for Combined Sewer Overflows can also be found at the following public libraries: Capitol View, Mount Pleasant, Northeast, Woodridge, Southeast, Shepherd Park, Tenley-Friendship and Washington Highlands.

# UPDATE CONTROL ACTIVITIES COMBINED SEWER OVERFLOW (CSO) BIANNUAL REPORT OCTOBER 2010 DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY



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This entails demolishing and removing old concrete tanks and equipment, and grading the land.

Next, a very large tunnel dewatering pump station will be constructed to pump the combined sewage out of the well at the end of the tunnel, from a depth of 160 feet to the surface to be treated. An additional wastewater treatment facility will be constructed at Blue Plains to treat the combined sewage. (The first flush of combined sewage will pass through the existing plant facility. Once the volume exceeds the existing plant capacity, the mixture will be redirected to the facilities under construction.)

The new facility will include screen removal of solids, grit chambers for sand and fine particulates and enhanced clarification facilities. The process also removes phosphorous and any nitrogen capable of being settled out.

The DC Clean Rivers Project marks a major step forward for environmental protection, since it will be the first time in the District that the combination of runoff and sanitary sewage generated during a heavy

rainstorm will be treated before reaching our local waterways.

In designing the treatment process facilities, the engineers at Blue Plains evaluated different design configurations for deep CSO pump stations in Providence, Boston, Chicago and Portland and integrated the best features of the systems they investigated. By 2018, combined sewage that would have entered the Anacostia River will be coming to Blue Plains through the new system.



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District of Columbia Water and Sewer Authority  
5000 Overlook Avenue, SW  
Washington, DC 20032

[DCWATER.COM](http://DCWATER.COM)