

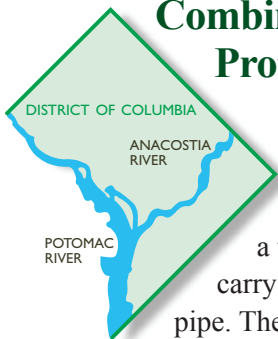
Update

Biannual Report October 2009



The Economics of Clean Water Even in today's economy, the nation's capital is undergoing a significant increase in property and infrastructure development, particularly along the Southwest waterfront and the Anacostia riverfront. The impact that the health of these waterways, the Potomac and Anacostia rivers respectively, has on the success and marketability of these projects cannot be overstated. As an environmental partner in shaping the city's future, the District of Columbia Water and Sewer Authority (DC WASA) has an integral role in helping to restore and protect these essential natural resources.

Combined Sewer Overflow (CSO) Control – Protecting the Health of Local Waterways



The District of Columbia is one of 772 older cities in the country with a combined sewer system. The combined sewer system covers about a third of the city, and was built in the early 1900's to carry both sanitary sewage and storm water in the same pipe. The system operates well in dry weather. However, during rainstorms, the flow can exceed the capacity of the sewer pipe. To prevent sewer backups and flooded streets, these sewers overflow into the Anacostia and Potomac rivers and Rock Creek. These combined sewer overflows (CSOs) can cause serious water pollution problems because they can contain bacteria, chemicals and debris. There are 10 CSO outfall locations on the Potomac River, 15 on the Anacostia, and 28 along Rock Creek and its tributaries.

To date, DC WASA has spent \$140 million to eliminate approximately 40 percent of the overflows. This project included large inflatable dams to catch and store overflows during rain storms; tide gates to keep river water from flowing into the sewer system; sewer separation to eliminate CSO outfalls; and pumping station construction and upgrades to increase flow capacity. A deep underground tunnel system is at the heart of DC WASA's federally approved \$2.2 billion Long Term Control Plan that will reduce CSOs by 96 percent overall. This is a 20-year program, to be completed in 2025, that requires construction of huge tunnels, approximately 23 feet in diameter and approximately 100 feet underground (deeper than the district's Metro tunnels). These tunnels will capture and store CSOs during rain storms and convey the flow to the Blue Plains Advanced Wastewater Treatment Plant.

(Learn more about CSO control on the next page)

Tunnel System Provides Added Protection for Chesapeake Bay



In addition to the CSO control issue, DC WASA has had to deal with the challenge of meeting increasingly stringent federal limits for nitrogen levels discharged from the Blue Plains wastewater treatment plant into the Potomac River, a tributary of the Chesapeake Bay. Nitrogen, like that in fertilizer used for lawns and gardens, stimulates plant growth. In waterways, elevated nitrogen levels cause increased algae growth which depletes oxygen that fish and other aquatic life need to thrive.

DC WASA has been a leader in working to clean up the Chesapeake

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Anacostia River Projects Aid Water Pollution Control



To reduce 98 percent of the CSOs in the Anacostia River, the proposed tunnel route extends from Blue Plains at the southern tip of DC, northward beyond RFK Stadium to west of New York Avenue.

The first waterway to be addressed by the Long Term Control Plan is the slow-moving Anacostia River – the most impaired of the three local waterways. Totalling 12 miles, the Anacostia River Tunnel System has three sections. Geographically, from south to north, they are the Blue Plains, Anacostia River and Northeast Boundary tunnels. DC WASA engineers have selected a tunnel route extending from Blue Plains to New York Avenue. Several branch tunnels will provide relief from flooding and sewer backups in low-lying areas.

Tunnel design is underway on the southernmost section—the Blue Plains Tunnel. Construction will run roughly from 2011 to 2015 and begins at the Blue Plains wastewater treatment plant. Old, unused facilities on the 150-acre plant site will be demolished to make way for the mining of the new tunnel. This demolition project will begin early next year and be completed in time for the Blue Plains Tunnel work to begin. In addition to providing a starting point for the tunnel, the cleared area will eventually facilitate other CSO-related projects such as a large pump station to dewater the tunnel system and a new CSO treatment facility.

The next section to be completed is the Anacostia River Tunnel, which will be built between 2013 and 2018. There are several other facilities to be constructed along this tunnel to capture CSO flow from the existing system and divert it into the tunnel for storage during the rain events.

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... Added Protection for Chesapeake Bay

Bay by voluntarily reducing nitrogen levels and exceeding goals established by the Chesapeake Bay Agreement.

Meeting lower nitrogen levels, as required by the federal operating permit for Blue Plains, meant construction of expensive new nitrogen removal facilities. However, by extending the CSO tunnel system to provide more storage, wastewater that flows into the plant during rain storms could be reduced at a significant cost savings to customers.

DC WASA added the Blue Plains Tunnel section to the existing plan to create a longer tunnel system, enabling us to build a smaller facility. This is an example of where a combined solution to two problems is hundreds of millions of dollars cheaper than solving both problems separately – true synergy.



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. By contrast, 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 high-volume 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 U.S. Environmental Protection Agency (USEPA) requires communities to develop a plan to address overflows. There are 53 CSO outfalls listed in DC WASA's existing discharge permit from the EPA.

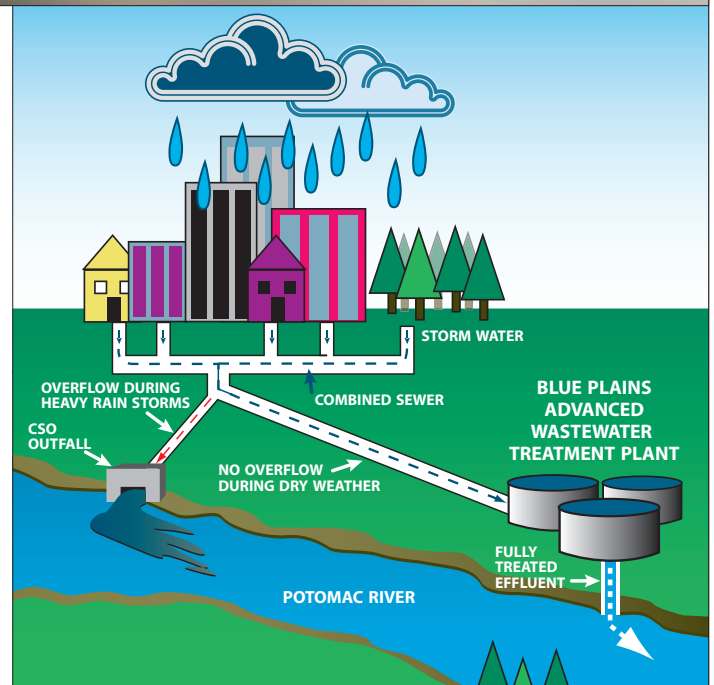
Where are CSO Outfalls? There are 10 CSO outfall locations on the Potomac River, 15 on the Anacostia River and 28 along Rock Creek and its tributaries. DC WASA has posted signs for each outfall location.

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 WASA 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.

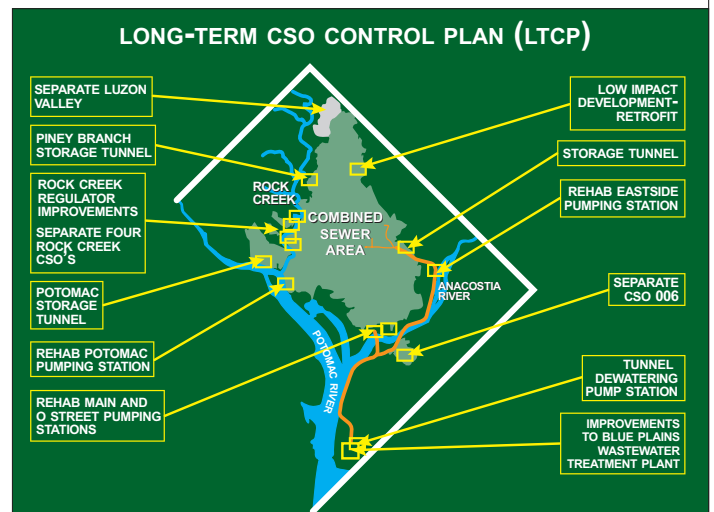
What are the possible public health impacts of CSOs? CSOs may pose a danger to the public because of the rapid flow of water exiting the outfalls and the potentially harmful substances it may contain. The public is advised to stay away from any sewer pipe discharge. CSOs could affect the receiving waters 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 bacteria 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 overflow during dry weather. This is called a Dry Weather Overflow (DWO). DC WASA has an intensive maintenance and inspection



How the District of Columbia's combined sewer system works.



To improve water quality in the Anacostia and Potomac rivers and Rock Creek, the 20-year Long-Term CSO Control Plan includes: three deep underground storage tunnels, including side tunnels to reduce flooding; rehabilitation of existing pumping stations; and the elimination of 14 overflow outfalls. Various sections of this system will be placed in operation along the way to reduce overflows even before the entire project is completed.

program to prevent DWOs from occurring. If you see a CSO outfall discharging during dry weather, call DC WASA at (202) 612-3400.

Where can you get more information? You can learn more by visiting DC WASA's website at www.dcwasa.com. Click on "What we do." You may also contact DC WASA 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.

Trash Patrol Aids Health of Local Waterways

As part of DC WASA's commitment to the environment, the Authority operates two skimmer boats that remove floatable debris from the Anacostia and Potomac rivers Monday through Friday. These crews remove more than 400 tons of trash from our waterways each year.

Plastic bottles, plastic bags, inflatable toys, baseballs and environmental debris like tree limbs, are all skimmed from the waterways and deposited into oversized dumpsters for removal. In decades past, there used to be larger items, such as sofas and refrigerators. But over the years, the skimmer boats have removed most of those. Still, there is the occasional unlikely item, such as the live deer that was recently rescued and relocated to dry ground.

In addition to their rigorous full-time work assignments, these crews clean the way for special events like last month's Nation's Triath-

lon and high school crew competitions, as well as for conservation efforts. As a result of DC WASA's floatable debris program, the Anacostia and Potomac rivers are much cleaner and more enjoyable waterways.



SERVING THE PUBLIC • PROTECTING THE ENVIRONMENT

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District of Columbia
Water and Sewer Authority



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COMBINED SEWER OVERFLOW (CSO) CONTROL ACTIVITIES



Update



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