

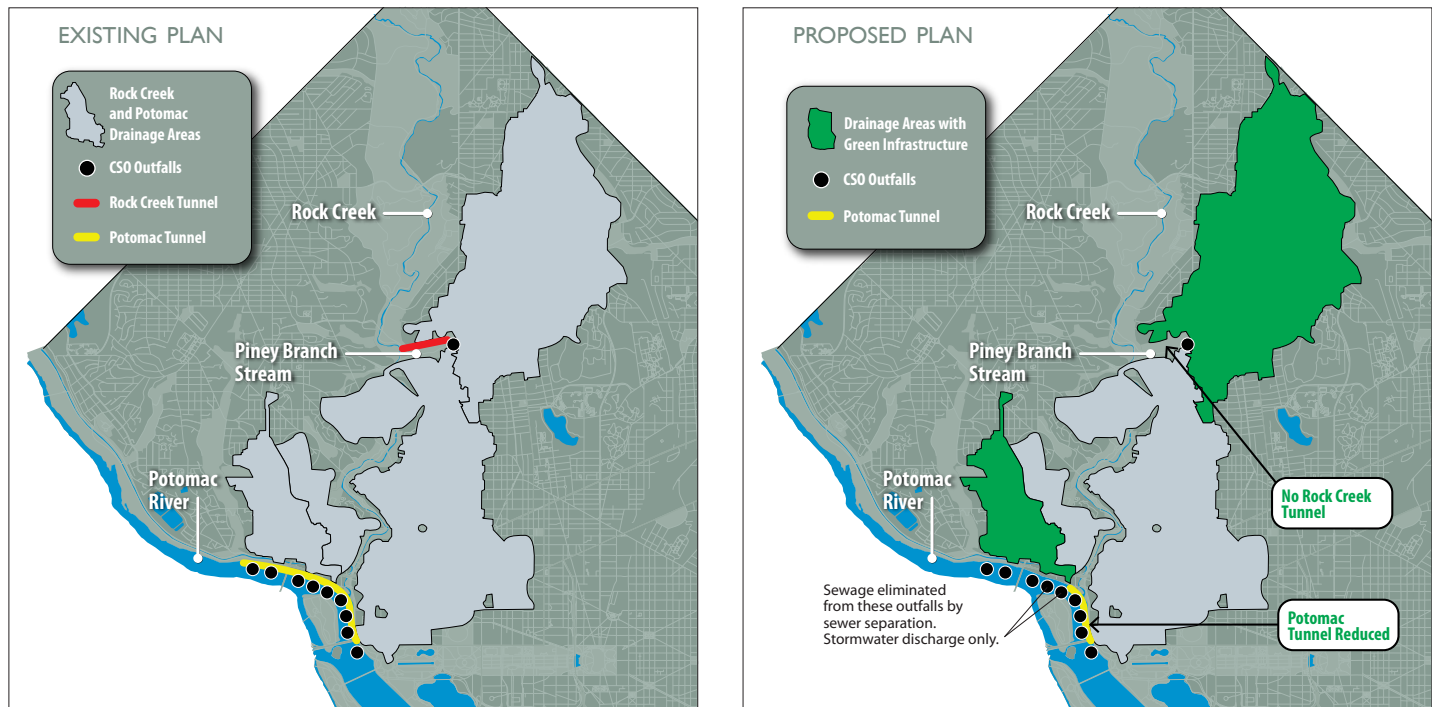


DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY
BIANNUAL REPORT APRIL 2014

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

CLEAN RIVERS PROJECT NEWS

ROCK CREEK AND POTOMAC RIVER CSO CONTROLS



Thinking green: DC Water proposes to modify Long Term Control Plan to include green infrastructure

Since General Manager George Hawkins took the helm of DC Water in 2009, he has been steering the Authority on a course to capture the benefits of green infrastructure. He recently introduced an ambitious plan to invest nearly \$100 million to green parts of the city on a grand scale, thereby reducing runoff and allowing for a greatly reduced gray (or tunnel-only) solution to Combined Sewer Overflows (CSOs) in two areas of the District. Green infrastructure (GI) includes practices such as green roofs, bioretention areas, and permeable pavement that mimic natural water cycles (through reducing or slowing stormwater runoff) in the urban environment. GI provides communities with triple-bottom-line benefits--environmental, social and economic.

The Long Term Control Plan (LTCP) modification proposal was unveiled on January 22 at the Green Infrastructure Summit and is widely advertised during a lengthy public comment period. The public is urged to comment on the proposed changes to the Long Term Control Plan during the comment period which ends on April 14th.

The departure from the current LTCP includes eliminating the Rock Creek tunnel in its entirety and considerably reducing the length of the Potomac tunnel. The Rock Creek tunnel would be replaced by \$60 million of green infrastructure. If approved by US EPA and the Department of Justice, the Potomac River solution will be a combination of GI, sewer separation and tunnel storage. The

DC Water GI Challenge Encourages Creative Concepts in Large-Scale GI Projects

While DC Water seeks an ambitious green infrastructure approach in public space, the Authority also launched a unique design challenge aimed to encourage the private sector to think creatively, and on a larger scale, for new ways to capture runoff. The results included ideas to green community areas in park-like settings as well as to use creative approaches such as blue roofs that capture and hold rain water, reminiscent of a retention pond.

The first phase of the challenge is complete and the second phase is underway. In the first phase, seven design teams were selected as winners based on their concepts and designs. In the

second phase, some of those designs will be funded for further design and construction.

In Phase I, DC Water worked in cooperation with the District Department of Transportation (DDOT) to identify two public space sites in the public Right-of-Way to serve as competition sites. Many firms used this opportunity to develop innovative submissions that maximized stormwater capture from impervious surfaces such as sidewalks, parking lanes, and roadways.

In Phase II, DC Water will fund several of the winning concepts. A subset of the seven winners will be selected and DC Water will award up to \$1 million total to advance the concepts to final design and construction. The seven winners for the first phase of the GI Challenge are being invited to provide proposals that DC Water will evaluate for feasibility to construct. DC Water expects to award funds for final design in late 2014 with anticipated construction in 2015.

For more information on the green challenge visit: dcwater.com/greenchallenge.



Team McKissack won for its innovative design "Symbiotic Streetscapes."

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dense, urban area closer to the National Mall would still be served by tunnel storage. The three most westerly CSO outfalls in Georgetown would be addressed by GI and smaller, combined sewersheds in between would be separated. The GI portion of this area would cost \$30 million.

If this proposal is approved, DC Water would begin constructing the first green infrastructure projects in the Rock Creek and Potomac River drainage areas as early as 2015 and 2017 respectively. Under the proposed approach, projects will be underway much earlier and the corresponding water quality benefits would begin to accrue sooner than with the current LTCP.



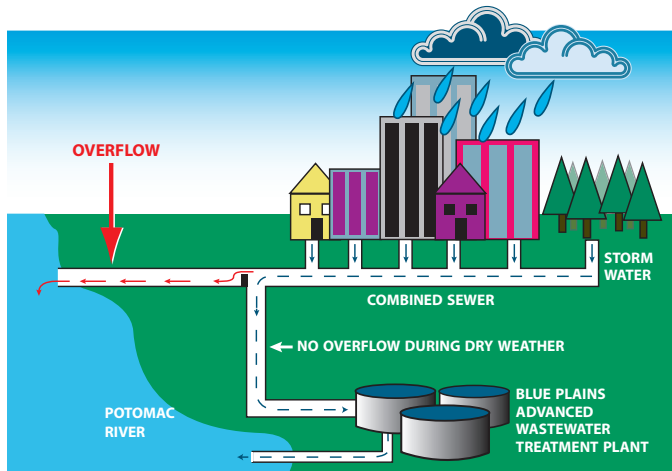
Recently constructed and planted green infrastructure roof at Fort Reno mimics natural processes to control stormwater

Under the current LTCP, water quality benefits are not realized in Rock Creek and the Potomac River until the full tunnel projects are completed in 2025. Under the proposed plan, each GI project contributes to cleaner waterways in the District as soon as it comes online. In addition to reducing CSOs, GI will provide local, green jobs; increase habitat; provide shade and cool summer temperatures; improve air quality; and provide neighborhood amenities for District residents.

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 53 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 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.

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.

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/cleanrivers. You may also contact DC Water's Office of External 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.

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Basics: What is Green Infrastructure?

Green infrastructure (GI) uses plants, trees and other practices to mimic natural processes to control stormwater, resulting in cleaned, cooled, and slowed stormwater runoff. These systems promote rainwater detention and infiltration into the soil and include techniques such as bioretention or rain gardens, porous pavements, green roofs and other technologies. The techniques can be implemented individually or connected such that runoff flows through and is treated by multiple practices in a “treatment train” to maximize pollutant reductions and runoff retention.

By integrating natural processes into the urban environment, GI provides not only stormwater management, but also additional benefits such as improved air quality, greener urban spaces, added wildlife habitat, increased property values, and improved livability in the District. These benefits are realized though GI implementation like the green roof recently constructed on top of the 5.8 million gallon covered drinking water reservoir at Fort Reno which converted almost one acre of impervious surface to a greener alternative.

GI implementation does not stop with DC Water. District agencies are also installing GI at schools, in alleys and other spaces within the District through programs such as RiverSmart. In addition, residents will see much more GI constructed through redevelopment activities that trigger DDOE’s recently implemented stormwater management regulations.



Porous pavement absorbs water through the surface and allows it to penetrate to the ground underneath

Green roofs absorb rain water through vegetation

Permeable pavers allow water infiltration to prevent runoff



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