

# DC Clean Rivers Project Digs into a Dirty Problem

BY GWYN JONES

DC has a plumbing problem – a big one. When it rains, underneath a third of the city, raw sewage mixes with storm water, overwhelming the antiquated combined sewer system and dumping about 3 billion gallons of highly polluted water into area waterways. About 2 billion goes into the Anacostia alone.

Big problems require big solutions. So, at the Blue Plains Wastewater Treatment Plant in the far southwest corner of Washington, the largest infrastructure project since Metrorail is now underway. Starting with a modest groundbreaking in October, DC Water's Clean Rivers Project ([www.dewater.com/cleanrivers](http://www.dewater.com/cleanrivers)) is ramping up its first phase at Blue Plains.

Undaunted by the cold wind and rain that greeted attendees at the October 12 ceremony, DC Water General Manager George Hawkins described the \$2.6 billion project with such enthusiasm, you would hardly have known he was talking about a sewage tunnel.

"There can be no overestimating the scale of this project - it's absolutely huge," said Hawkins. "The machine our teams will use to build these tunnels is the size of a football field, and needs to be assembled in pieces underground. And because of this work, no single institution is doing more than ours to improve the District's waterways."

The Clean Rivers Project is necessitated by a 2005 federal consent decree that mandates DC to drastically reduce the amount of raw sewage that flows into the Potomac and Anacostia rivers, as well as Rock Creek, every year due to Combined Sewer Overflows (CSOs).

The new infrastructure will allow virtually all of the wastewater and storm water to be captured and stored so that it can be cleaned at Blue Plains before being released into the Potomac. "[Blue Plains] is the original recycling facility," Hawkins said.



The DC Water Clean Rivers Project. Photo: Pamela Mooring, DC Water

The first tunnel system, and the largest, will serve the Anacostia River. The Blue Plains Tunnel, the first part of that system, will run from Blue Plains in far Southwest to RFK Stadium. The 23-foot diameter tunnel is as large as a Metrorail tunnel, and at 100 feet deep, it will cross under both the Anacostia and the Metro Green Line.

Tunnel segments south of RFK Stadium, together with their surface hydraulic facilities and a tunnel dewatering pump station, are scheduled to be operating by March 2018, providing relief to the Anacostia first. A second segment, which extends north of RFK Stadium, is required to be completed by 2025.

For many residents along the tunnel's path, the prospects of a Metro-sized undertaking in their neighborhood might raise fears of torn-up streets and disrupted lives for a decade.

But Carlton Ray, Director of the Clean Rivers Project DC Water, noted that "One of the beauties of tunneling is that we'll be underground most of the time. Most folks won't know we're building a \$1.8 billion project for the Anacostia River

system."

The only places where surface disruptions will occur, Ray said, is where the four shafts will be built along the route: two at Blue Plains, one at the Joint Base Anacostia (Bolling) base, one at Poplar Point and one near Nationals Ball Park. "And those disruptions will only be for several months, versus years-long tunneling," Ray said.

As an added benefit, the massive tunnel project will generate much-needed jobs for District residents. Ray said that all DC Water's contracts for the project require "first source agreement," which means that 50% of all new hires will come from the District. In other words, Ray said, "People that we're hiring will need to come from the District first."

Ray suggested that those interested in being considered for jobs on the project contact their local labor unions. Both labor and operators' unions have worker training programs in place, Ray said.

## Clean Rivers Project Mitigates Antiquated System

Prior to the early 1900s, DC's

wastewater and storm water systems used the same pipes. These combined sewers still serve both sanitary (wastewater) flow and storm water drainage in the downtown area and in older portions of DC Water's service area, largely on the eastern side of the city. Combined sewer overflows (CSOs) occur during storm "events" where rain runoff overwhelms the capacity of the combined sewer system, and it can't convey the mixture of wastewater and storm water to the treatment plant.

As Hawkins explained, "A lot of rain fills up the pipes and the overflow goes into the rivers – and people's basements." It doesn't take much rain -- more than a quarter of an inch is enough to send a filthy mixture of sewage and storm water from the combined sewer system into DC's waterways through 53 outfalls on the Potomac and Anacostia rivers, and Rock Creek.

CSOs contain material that contributes to high bacteria levels in the rivers, making the Anacostia in particular dangerous to human health. Not only is the river unswimmable; eating fish from the Anacostia is dangerous as well. The Potomac and Rock Creek are also affected and should be avoided after a rain. The organic material in CSOs can contribute to low dissolved oxygen levels, which can contribute to a potential for fish stress or fish kills, especially in summer months.

During CSOs "floatables" such as plastic bottles and Styrofoam cups add tons of debris to the waterways, which looks bad and interferes with both wildlife and human activities on the rivers and along their banks.

According to Ray, CSOs happen 78-80 times per year, releasing some 3 billion gallons of sewage directly into area waterways per year. Once this infrastructure project is completed, DC Water estimates that CSOs will occur only 4 times per year on average.

## Other Solutions

DC Water is beginning discussions with the parties on reopening the 2005 agreement (??? Clean River agreement? Alluded to in earlier paragraph but this isn't clear). The goal would be to explore green-development technologies that could reduce or eliminate future pieces of the project, create jobs, green the District and reduce rate increases for customers. Other cities, notably Philadelphia, have proposed CSO solutions that rely heavily on green techniques instead of tunnels.

Brent Bolin, Director of Advocacy for the Anacostia Watershed Society, acknowledged that the Anacostia tunnel is necessary because the CSO problem is so great. "We need to make this river healthy," he said. "But we are also supportive of ways to get to the same goal with green infrastructure. There is a concern about the energy needed to pump and hold and treat all that water, so that needs to be considered as well."

Bolin pointed out that as more storm water is captured on site through a variety of green infrastructure strategies, it will take less energy to capture and treat water throughout the city. In addition, the tunnel, although necessary, doesn't provide any visible community benefits, while many green infrastructures do – creating green space, reducing urban heat island effect, etc. Like Hawkins, Bolin hopes that the District can eliminate the need for some of the later tunnels by incentivizing and implementing green infrastructure throughout the city.

"Philadelphia is doing a good job," Bolin said, noting that the city studied its CSO problem and concluded that they could meet the terms of its consent decree, save money, and green their neighborhoods by investing in green infrastructure instead of tunnels. "If [DC Water] took 5% of the tunnel costs and turned it into green infrastructure, I'm betting they would get more bang for their buck with the green infrastructure," Bolin said.

## DC Water Rate Payers Foot the Bill

Most of the \$2.6 billion to pay for this massive undertaking is

coming from DC Water rate payers in the form of an "impervious surface area charge." Rather than an across-the-board rate hike, this kind of charge not only affects those who use water but also those whose properties generate large volumes of storm water runoff and contribute more to the District's CSO problem.

To illustrate how this works, DC Water's Pamela Mooring explained that normally a large shopping center might not use a lot of water compared to an office building. However, a shopping center has a large parking lot and large roof area – impervious surfaces that catch rainwater and send it rushing into storm sewers. The impervious surface area charge is a way to make sure that properties that contribute more to the problem are also paying more toward the cost of fixing it.

The District Department of the Environment is developing regulations that would create incentives for property owners to implement storm water capture strategies, such as rain gardens, green roofs, etc. Under the proposed regulations, property owners who capture more storm water on site would receive discounts off their impervious surface area charges. As proposed, the discounts would be retroactive to 2009, when the impervious surface area charge went into effect. DDOE has received the first round of comments and is expecting to have revised regulations out for public comment toward the end of the year or early 2012.

Incentives do exist for homeowners to "go green," Bolin said, pointing out that DC has an "amazing" program called Riversmart Communities. "Everyone who cares about the District should get involved with the Riversmart Homes program (<http://ddoe.dc.gov/riversmarthomes>)," he urged. The program provides government assistance to homeowners to install rain gardens and other green infrastructure, for which the homeowner has only a small copay.

"Our dominant land use is residential," Bolin said, "and if we don't address runoff from residential properties, we'll never reach our clean water goals." ★

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