



DC Water's Green Bond Report

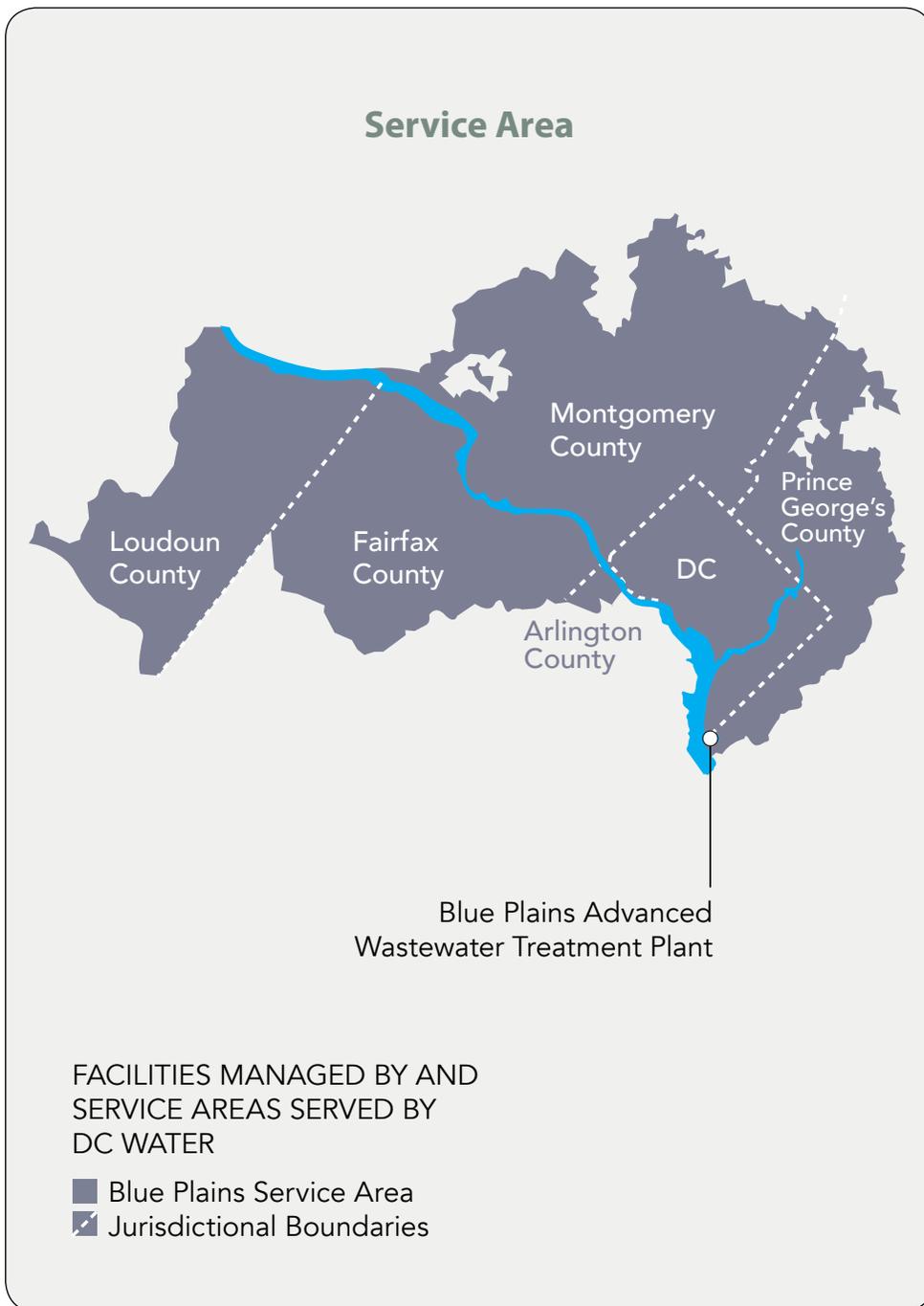
DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY **FISCAL YEAR 2015**



DC Water

The District of Columbia Water and Sewer Authority (DC Water) provides retail drinking water and wastewater services to the District of Columbia (District) and wholesale wastewater treatment services to several adjoining municipalities in Maryland and Virginia. DC Water was created in 1996 under District law, with the approval of the United States Congress, as an independent authority of the District government with legal, financial and operational autonomy. DC Water is governed by an 11-member Board of Directors, with representatives from the District, Montgomery and Prince George's Counties in Maryland, and Fairfax County in Virginia. The Board is responsible for adopting DC Water's policies and procedures, and its District representatives are vested with the sole authority to set DC Water's rates, fees and charges.

In Fiscal Year (FY) 2015, DC Water had an operating budget of approximately \$516 million and a 10-year, \$3.7 billion capital improvement program. It employed over 1,100 people in the District and served a total population of 2.3 million within its 725 square mile service territory. DC Water pumped an average of 104.5 million gallons per day of drinking water through 1,350 miles of water mains and treated an average of 370 million gallons per day of wastewater through 1,900 miles of sanitary and combined sewers.





Inside Content

Blue Plains Advanced Wastewater Treatment Plant

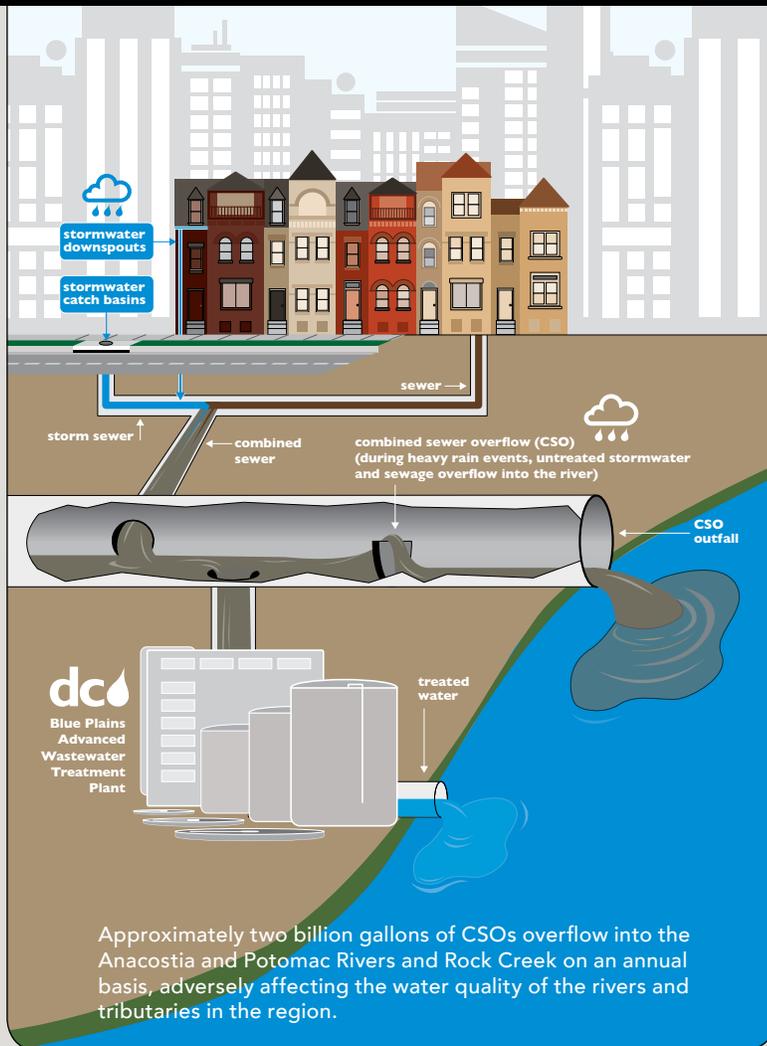
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DC Clean Rivers Project

Like many older cities in the United States, the sewer system in the District is comprised of both combined sewers and separate sanitary sewers. In a combined sewer system, sewage from homes and businesses during dry weather is conveyed to DC Water’s Advanced Wastewater Treatment Plant at Blue Plains (Blue Plains) located in the southwestern part of the District on the east bank of the Potomac River. At Blue Plains, wastewater is treated to remove pollutants prior to being discharged into the Potomac River. When the capacity of a combined sewer is exceeded during storms, the excess flow, which is a mixture of sewage and stormwater runoff, is discharged to the Anacostia and Potomac Rivers and Rock Creek. This excess flow is called combined sewer overflow (CSO). There are 47 active CSO outfalls in the District’s combined sewer system.

Communities in the United States with combined sewer systems were required to prepare long term control plans for managing CSO in accordance with Section 402(q) of the Clean Water Act (CWA). A United States Environmental Protection Agency (EPA) Report to Congress on the Impacts and Controls of CSOs and SSOs (EPA 833-R-04-001 dated August 26, 2004 or the “2004 EPA Report”) concluded that occurrence of CSOs are widespread and cause or contribute to adverse environmental and human health impacts. DC Water, in compliance with the requirements of the CWA and its National Pollutant Discharge Elimination System (NPDES) permit issued by the EPA, prepared a Long-Term Control Plan (LTCP). The LTCP is a plan that outlines infrastructure improvements with a proposed implementation schedule to control CSO discharges to the area waterways.

In addition to controlling CSO discharges to the area waterways, select projects in the LTCP have also been deemed to relieve and mitigate flooding in certain areas of the District by the Mayor’s Task Force on the Prevention of Flooding in Bloomingdale and LeDroit Park (Mayor’s Task Force). Since 2011, and in anticipation of a modification of its LTCP in January 2016, DC Water has explored the use of green infrastructure to control CSOs.

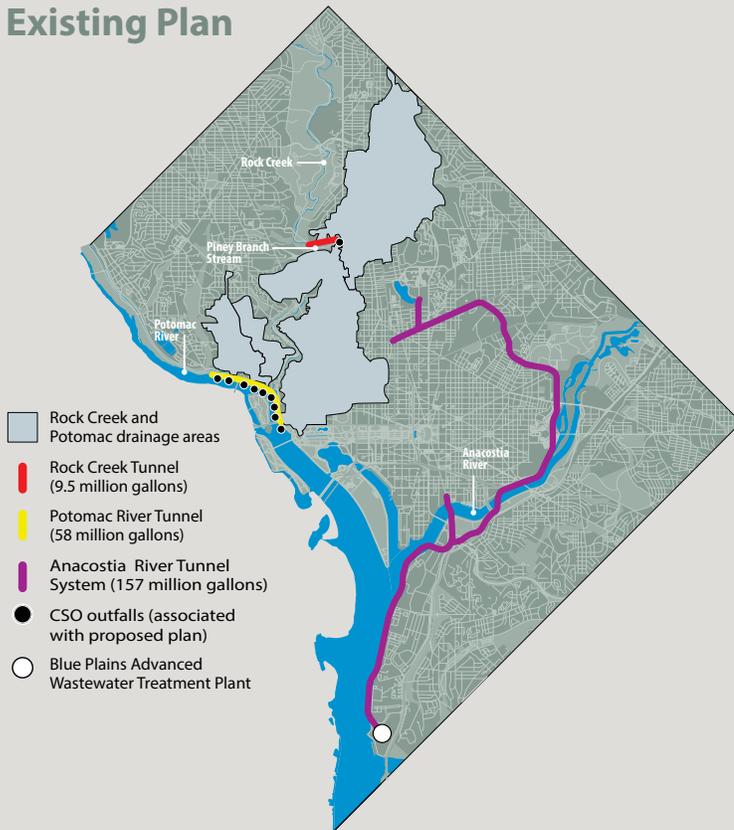


The LTCP infrastructure improvements that have been determined to provide flood relief and mitigation include:

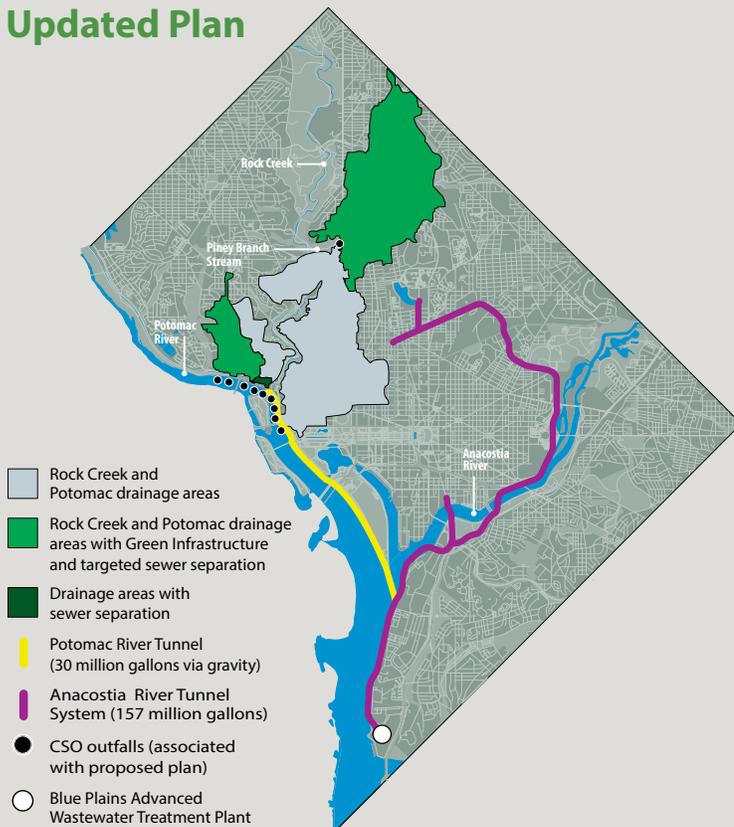
- Irving Street Green Infrastructure
- First Street Tunnel
- Northeast Boundary Tunnel

A draft of the LTCP was submitted for public comment, as well as to the EPA and the District Department of Health in June 2001. After addressing public comments, the final LTCP proposed significant reductions in CSO compared to the draft plan and was approved in December 2004. On March 25, 2005, DC Water and the District government entered into a Consent Decree (Civil Action No. 1:00-cv-00183-TFH) with the United States Department of Justice and the EPA. This Consent Decree establishes a schedule for the implementation of the LTCP. In 2010, DC Water renamed the LTCP the DC Clean Rivers Project. The DC Clean Rivers Project includes all of the projects contemplated under the LTCP as well as certain green infrastructure projects as agreed upon with the EPA.

Existing Plan



Updated Plan



DC Water's Green Bond and Annual Reporting Commitments

In July 2014, DC Water issued its inaugural green bond (Public Utility Senior Lien Revenue Bonds, Series 2014A; CUSIP Number 254845 JZ4; Offering Memorandum dated July 10, 2014 or the "Series 2014A Bond") to finance a portion of the DC Clean Rivers Project. This historic \$350 million issuance marked the first green bond issued in the United States to be supported by an independent "Second Party Opinion" and the first 100-year "Century" bond issued by a municipal water utility. DC Water retained Vigeo to provide the Second Party Opinion on its green bond in accordance with Vigeo's environmental, social and governance (ESG) assessment methodology, which is based upon criteria aligned with public international standards in compliance with the International Organization for Standardization (ISO) 26000 guidelines.

The Second Party Opinion included the identification of certain ESG performance indicators and DC Water's commitment to undertake annual reporting on those indicators. This Green Bond Report for the fiscal year ended September 30, 2015, was prepared to satisfy reporting commitments outlined in Vigeo's Second Party Opinion, which is included within the offering memorandum of the Series 2014A Bond.

DC Water's green bond reporting commitments for the fiscal year ended September 30, 2015, include the following:

-  **Use of Proceeds** of the green bond for the DC Clean Rivers Project
-  **Environmental and Social Outcomes** achieved by the DC Clean Rivers Project
-  **Responsible Management** of the DC Clean Rivers Project

DC Water takes responsibility for the completeness, accuracy and validity of the indicators and for the conformity of the indicators with DC Water's internally developed reporting criteria. KPMG LLP reviewed the indicators identified in the DC Water Green Bond Report with the respective indicator reference letter (A) through (S) (see accompanying Independent Accountants' Report on page 12).



Use of Proceeds

DC Water established the following performance indicators and related criteria to report on the use of proceeds:

Indicator Reference	Indicator	Criteria
(A)	Net Proceeds Deposited	Par amount of the Series 2014A Bond less the underwriters' discount and costs of issuance as presented in the Series 2014A Bond's offering memorandum.
(B)	Bond Draws	Amounts reimbursed to DC Water from the Series 2014A Construction Account for expenses paid related to the DC Clean Rivers Project during the fiscal year.

The net proceeds of the Series 2014A Bond were deposited into a segregated account (the Series 2014A Construction Account) under DC Water's Master Indenture of Trust, as amended and supplemented (Indenture) and are invested pursuant to the Indenture and DC Water's Investment Policy. All uses of the proceeds drawn from the Series 2014A Construction Account were used to fund DC Clean Rivers Project costs. The following table provides the net proceeds deposited and bond draws from the bond issuance date through September 30, 2015:

Bond Issuance	Net Proceeds Deposited (A)	Bond Draws (B)
Series 2014A Bond	\$346,000,000	\$278,800,000



Environmental and Social Outcomes

The DC Clean Rivers Project is designed and engineered to achieve three core environmental and social outcomes:

- **Water quality**
Improve water quality by capturing and treating CSOs before entering the District's rivers and waterways.
- **Climate resilience**
Promote climate resilience, with the objective of flood relief and mitigation.
- **Quality of life**
Enhance the quality of life associated with restoring the District's rivers, waterways and waterfront areas by removing harmful contaminants and pollutants.

Water Quality

The first core outcome of the DC Clean Rivers Project is to improve water quality by capturing and treating CSOs before entering the District's rivers and waterways. DC Water established the following performance indicators and related criteria to report on water quality:

Indicator Reference	Indicator	Criteria
(C)	Reduction in Predicted Pollutants	Percentage reduction in pounds of total nitrogen, total phosphorus, and total suspended solids from predicted 1996 pre-DC Clean Rivers Project discharge calculated in the LTCP compared to predicted discharge as reported in Monthly Operations Report for Combined Sewer System submitted to the EPA for the fiscal year.
(D)	Tunnel Construction Progress	Progress towards completion as indicated by the percentage of distance in feet from beginning of tunnel (as defined in DC Clean Rivers Project's tunnel contract drawings) to the position of the tunnel boring machine as of fiscal year end, as measured by the Tunnel Process Control Program of the tunnel boring machine divided by the planned length of the completed tunnel according to the DC Clean Rivers Project's tunnel contract drawings.

The DC Clean Rivers Project is divided into two phases. The first phase includes various infrastructure projects, primarily upgrades to existing facilities in the sewer system such as inflatable dams and pumping stations. As of September 30, 2015, the first phase of the DC Clean Rivers Project was completed.

In 1996, as part of the LTCP, DC Water sampled certain areas of the rivers and waterways near CSO outfalls for nitrogen, phosphorus and suspended solids levels. Using the data collected and three-year average rainfall for 1988 to 1990, DC Water modeled the predicted discharge of total nitrogen (TN), total phosphorus (TP) and total suspended solids (TSS) in the District rivers and waterways in 1996. DC Water also calculated the predicted pollutant discharge as of September 30, 2015, subsequent to completing Phase 1 of the DC Clean Rivers Project. The estimated reduction in these pollutants is as follows:

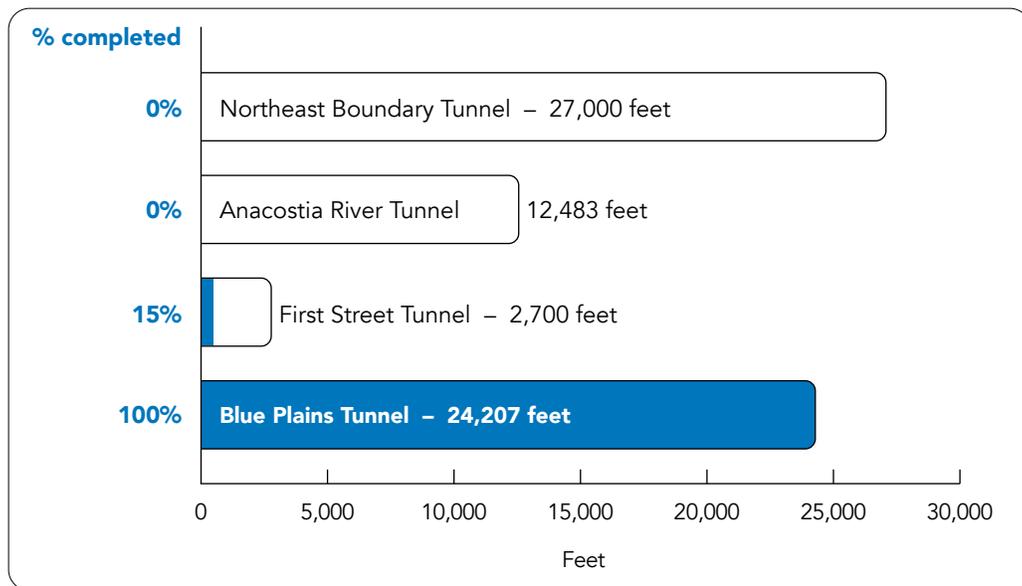
Reduction in Predicted Pollutants			
Pollutants	Predicted Discharge in 1996 (Prior to Clean Rivers Project) (lbs)	Predicted Discharge in FY 2015 (lbs)	Percent Reduction (C)
Total Nitrogen	127,550	71,196	44.2%
Total Phosphorus	27,138	15,148	44.2%
Total Suspended Solids	3,527,987	1,969,243	44.2%

The second phase of the DC Clean Rivers Project includes the construction of a deep tunnel system that is engineered to capture and divert CSOs into underground sewer structures to prevent the CSOs from overflowing into the Anacostia and Potomac Rivers and the Rock Creek. Once diverted into the tunnels, the CSOs will be conveyed to and treated at Blue Plains before being discharged back into the Potomac River. Upon completion of the tunnel system, DC Water anticipates that CSOs will have been reduced system wide by 96% and in the Anacostia River by 98% (using the same model and inputs described above). However, until the first portion of the Anacostia River Tunnel System (Blue Plains Tunnel) is operational, which is anticipated to occur in 2018, the reduction in predicted pollutants is not expected to change. The Anacostia River Tunnel System includes the following tunnel projects:

1. Blue Plains Tunnel
2. First Street Tunnel
3. Anacostia River Tunnel
4. Northeast Boundary Tunnel

As a result, DC Water has committed to report on the progress of the DC Clean Rivers Project tunnel system construction.

Tunnel Construction Progress (D)



Climate Resilience

A second core outcome of the DC Clean Rivers Project is to promote climate resilience, with the objective of flood relief and mitigation. DC Water established the following performance indicator and related criteria to report on climate resilience:

Indicator Reference	Indicator	Criteria
(E)	Flood Relief and Mitigation Projects Progress	Progress towards completion as indicated by the percentage of cumulative amounts paid for each project through the fiscal year end to the total budget approved by the Board of Directors for the identified programs.

The table below reports on the major flood relief and mitigation related projects contained within the DC Clean Rivers Project that have been approved for funding and their respective progress towards completion as indicated by the percentage of cumulative amounts paid for each project as of September 30, 2015, to total approved budget for the identified projects.

Flood Relief and Mitigation Projects Progress	Board Approved Contract Funding	Actuals	Percent (E)
Irving Street Green Infrastructure	\$3,500,000	\$2,684,327	76.7%
First Street Tunnel	157,675,000	111,406,085	70.7%
Total	\$161,175,000	\$114,090,412	70.8%

Although the budget has not yet been approved by the Board, the Northeast Boundary Tunnel (NEBT) is a major component of the DC Clean Rivers Project’s objective of meeting CSO control objectives and providing flood relief and mitigation in the Northeast Boundary drainage area of the District. The NEBT will provide CSO storage capacity for the Anacostia River as required by the Consent Decree and will also serve to relieve and mitigate the occurrence of sewer flooding and basement backups in the Northeast Boundary drainage area.

In 2012, a series of heavy storms caused significant overland flooding and sewer system backups in certain areas of the District. In 2013, in response to the recommendations made by the Mayor’s Task Force, the timeline of construction of the NEBT was accelerated and the project was modified in order to more effectively relieve and mitigate flooding in the Bloomingdale and LeDroit Park neighborhoods prior to the scheduled completion of the DC Clean Rivers Project.

Blue Plains Tunnel



Quality of Life

A third core outcome of the DC Clean Rivers Project is to enhance the quality of life associated with restoring the District's rivers, waterways and waterfront areas by removing harmful contaminants and pollutants. As CSOs are diverted from the District's rivers and waterways as a result of the completion of the DC Clean Rivers Project, influent at Blue Plains will increase. Therefore, in addition to the reduction in predicted pollutants indicator **(C)** previously presented, DC Water established the following performance indicator and related criteria for quality of life:

Indicator Reference	Indicator	Criteria
(F)	Pollutants Removed at Blue Plains	Percentage removal of total nitrogen, total phosphorus and total suspended solids in pounds contained in the water entering (influent) and exiting (effluent) Blue Plains for the current fiscal year as measured at Blue Plains and used to calculate information submitted in EPA Monthly Reports.

The table below represents the percentage removal of contaminants and pollutants by the DC Water Advanced Wastewater Treatment Plant at Blue Plains.

Pollutants Removed at Blue Plains			
Parameter	Influent (lbs)	Effluent (lbs)	Percent Removed (F)
Total Nitrogen	34,617,347	3,078,779	91.1%
Total Phosphorus	3,686,232	62,863	98.3%
Total Suspended Solids	201,603,736	975,620	99.5%


Responsible Management

DC Water has also committed to report on the responsible management of the DC Clean Rivers Project on the degree of implementation of select environmental, social and governance (ESG) criteria at the project level. The criteria are organized in five ESG domains: **Human Rights, Human Resources, Environment, Business Behavior** and **Community Involvement**.

Human Rights

DC Water established the following performance indicators and related criteria for this domain as follows:

Indicator Reference	Indicator	Criteria
(G)	DC Clean Rivers Project full-time employees by gender, age, and ethnicity (indicators of diversity)	Number of DC Water employees working full-time solely assigned to the DC Clean Rivers Project by self-reported gender, age group, and ethnicity as of the fiscal year end.

Indicator Reference	Indicator	Criteria
(H)	Total number of incidents of discrimination and actions taken	Number of reported incidents of discrimination against DC Clean Rivers Project employees reported to the DC Water Human Resources Department through the hotline or by employees during the fiscal year and actions taken by DC Water to address the reported incidents.

The DC Clean Rivers Project employed 14 full time employees with the following indicators of diversity: gender (10 male and 4 female); age (4 aged 18-44 years, 8 aged 45-64 years, and 2 aged 65 years and above); ethnicity (12 White (non-Hispanic) and 2 African-American) as of September 30, 2015 **(G)**.

The DC Clean Rivers Project had no reported incidents of discrimination during FY 2015 **(H)**.

Human Resources

DC Water established the following performance indicators and related criteria for this domain as follows:

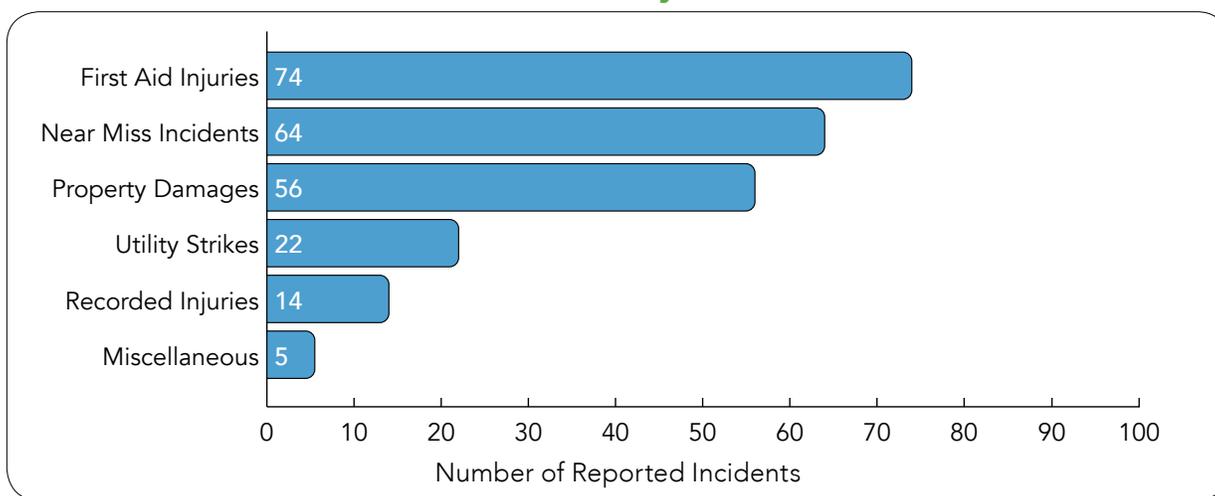
Indicator Reference	Indicator	Criteria
(I)	Percent of DC Clean Rivers Project employees receiving a performance review during the fiscal year	Percentage of DC Clean Rivers Project full time employees that received a performance review during the fiscal year divided by total number of DC Clean Rivers Project employees as of the fiscal year end.
(J)	Number of project person hours spent on the DC Clean Rivers Project	Number of cumulative hours reported by contractors as time worked on the DC Clean Rivers Project during the fiscal year.
(K)	Number of safety committee meetings	Safety committee meetings conducted and reported by DC Clean Rivers Project contractors to DC Water during the fiscal year.
(L)	Number of safety observation reports	Safety observation reports prepared and submitted to DC Clean Rivers Project contractors by DC Water during the fiscal year.
(M)	DC Clean Rivers Project recorded injuries incident rate	Recorded injuries incident rate of DC Clean Rivers Project contracts for the fiscal year, calculated as number of recorded injuries times 200,000 divided by the number of project person hours spent on the DC Clean Rivers Project.
(N)	Health and safety incidents for contractors	Health and safety incidents by type reported by DC Clean Rivers Project contractors during the fiscal year.



100% of DC Clean Rivers Project full time employees received a performance review during FY 2015 **(I)**.

In FY 2015, a total of 1.27 million project person hours were spent on the DC Clean Rivers Project by related contractors **(J)**, 226 safety committee meetings **(K)** were held and 93 safety observation reports **(L)** were submitted. The DC Clean Rivers Project recorded injuries incident rate was 2.21 **(M)** for FY 2015. The following health and safety incidents for contractors **(N)** were reported during FY2015:

Health and Safety Incidents



Environment

The successful completion of the DC Clean Rivers Project may result in environmental improvements, including the promotion of subaqueous vegetation, marine life, and other plants and wildlife through the restoration of natural habitats. According to the 2004 EPA Report, the principal pollutants in CSOs include: 1) pathogens; 2) oxygen depleting substances measured as Biochemical Oxygen Demand (BOD); 3) total suspended solids; 4) toxins; 5) nutrients; and 6) floatables. All of these pollutants, at elevated levels, can have negative impacts on the aquatic biota of the local rivers and waterways.

The 2004 EPA Report further states that pathogens can cause disease in aquatic life; high levels of oxygen depleting substances and nutrients in rivers can cause fish kills; increased total suspended solids can damage habitats for aquatic life; acute effects of exposure to toxins can be observed as immediate fish kills or severely reduced biologic diversity; and floatables have an adverse impact on wildlife, primarily through entanglement or ingestion. All of these pollutants have been reported to be at high levels at CSO outfalls. The 2004 EPA Report also states that the reduction of CSOs would reduce the pollutants entering the Potomac and Anacostia Rivers and the Rock Creek and would have a positive impact on the biodiversity of its aquatic life.

Impacts to the fauna and flora during the construction phase of the DC Clean Rivers Project will be temporary and the natural environments will be restored upon completion of the project.

DC Water established the following performance indicator and related criteria for this domain as follows:

Indicator Reference	Indicator	Criteria
(O)	Volume of CSO discharged per average rainfall year	Volume in gallons of CSO discharged subsequent to completion of phase one of the DC Clean Rivers Project as approved under the LTCP by river and waterway.

In FY 2015, the volume of CSOs discharged based on historical average rainfall totaled approximately 1.969 billion gallons, with approximately 1.281 billion gallons in the Anacostia River, 639 million gallons in the Potomac River, and 49 million gallons in the Rock Creek **(O)**.

Business Behavior

DC Water established the following performance indicators and related criteria for this domain as follows:

Indicator Reference	Indicator	Criteria
(P)	Percent of all DC Water invoices paid within 30 days Percent of all DC Water invoices paid within 45 days	All invoices paid by DC Water during the fiscal year within 30 and 45 days of invoice receipt date as a percentage of all invoices paid by DC Water during the fiscal year.
(Q)	Percentage of EPA Fair Share Objective construction contracts awarded to Women and Minority Business Enterprises	Percentage of total EPA Fair Share Objective contract dollars DC Water awarded to businesses owned by minorities or women, as certified by relevant state governments, for all DC Water construction contracts receiving federal funds awarded during the fiscal year.

In FY 2015, DC Water paid approximately 97.2% of its invoices within 30 days and approximately 98.1% within 45 days **(P)**.

The DC Clean Rivers Project adheres to DC Water's Disadvantaged Business Enterprise Program (DBE Program) as established by the EPA. In accordance with the DBE Program, an EPA Fair Share Objective for Minority Business Enterprises (MBE) and Women Business Enterprises (WBE) participation of 32% and 6%, respectively, is required for construction contracts. In support of these objectives, DC Water encourages MBEs and WBEs to participate at all levels of its procurement opportunities.

No new contracts were awarded for DC Clean Rivers Projects in FY 2015. However, DC Water EPA Fair Share Objective awards for construction contracts totaled approximately \$153.5 million in FY 2015, with MBEs awarded approximately \$61.2 million (40%) and WBEs awarded approximately \$7.6 million (5%) **(Q)**.

Community Involvement

DC Water established the following performance indicators and related criteria for this domain as follows:

Indicator Reference	Indicator	Criteria
(R)	Total number of contractors employed by the DC Clean Rivers Project Percentage of DC Clean Rivers Project contractors that reside within the District or DC Water's service territory	Number of employees, as reported by DC Clean Rivers Project contractors, employed by DC Clean Rivers Project contractors from inception to date as of fiscal year end. Percentage of DC Clean Rivers Project contractors that reside within the District of Columbia and Montgomery, Prince George's, Fairfax, and Loudon Counties as of fiscal year end.
(S)	Number of public meetings	Number of public meetings, including meetings with neighborhood groups, elected officials, civic associations, local businesses, community groups, and public town halls related to DC Clean Rivers Project conducted by DC Water staff members during the fiscal year.

The DC Clean Rivers Project employed a total of 2,210 contractors **(R)**. Approximately 1,248 or 56% of the contractors **(R)** reside within the District or DC Water's service territory, which includes the suburban jurisdictions of Montgomery and Prince George's Counties in Maryland, and Fairfax and Loudoun Counties in Virginia. In FY 2015, the DC Clean Rivers Project held a total of 80 public meetings **(S)**, including meetings with neighborhood groups, elected officials, civic associations, local businesses, community groups, and public town halls.

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INDEPENDENT ACCOUNTANTS' REPORT

Board of Directors
District of Columbia Water and Sewer Authority:

We have reviewed the indicators identified in the Indicator and Criteria tables on pages 3 through 10 in the accompanying District of Columbia Water and Sewer Authority Green Bond Report for the year ended September 30, 2015. The District of Columbia Water and Sewer Authority's management is responsible for the indicators and for the criteria.

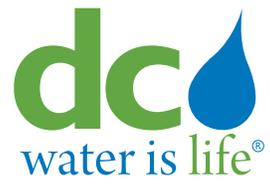
Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. A review is substantially less in scope than an examination, the objective of which is the expression of an opinion on the indicators referred to above. Accordingly, we do not express such an opinion.

Based on our review, nothing came to our attention that caused us to believe that the indicators referred to above are not presented, in all material respects, in conformity with the corresponding criteria set forth on pages 3 through 10 of the District of Columbia Water and Sewer Authority Green Bond Report for the year ended September 30, 2015.

We have not performed any procedures, and do not express any conclusion, over any other information included in the accompanying District of Columbia Water and Sewer Authority Green Bond Report for the year ended September 30, 2015.

KPMG LLP

Washington D.C.
April 12, 2016



dcwater.com

