



water is life

District of Columbia Water and Sewer Authority
George S. Hawkins, General Manager

Innovations in Infrastructure Funding at DC Water

Presentation for:

Chesapeake Bay Citizens Advisory Committee

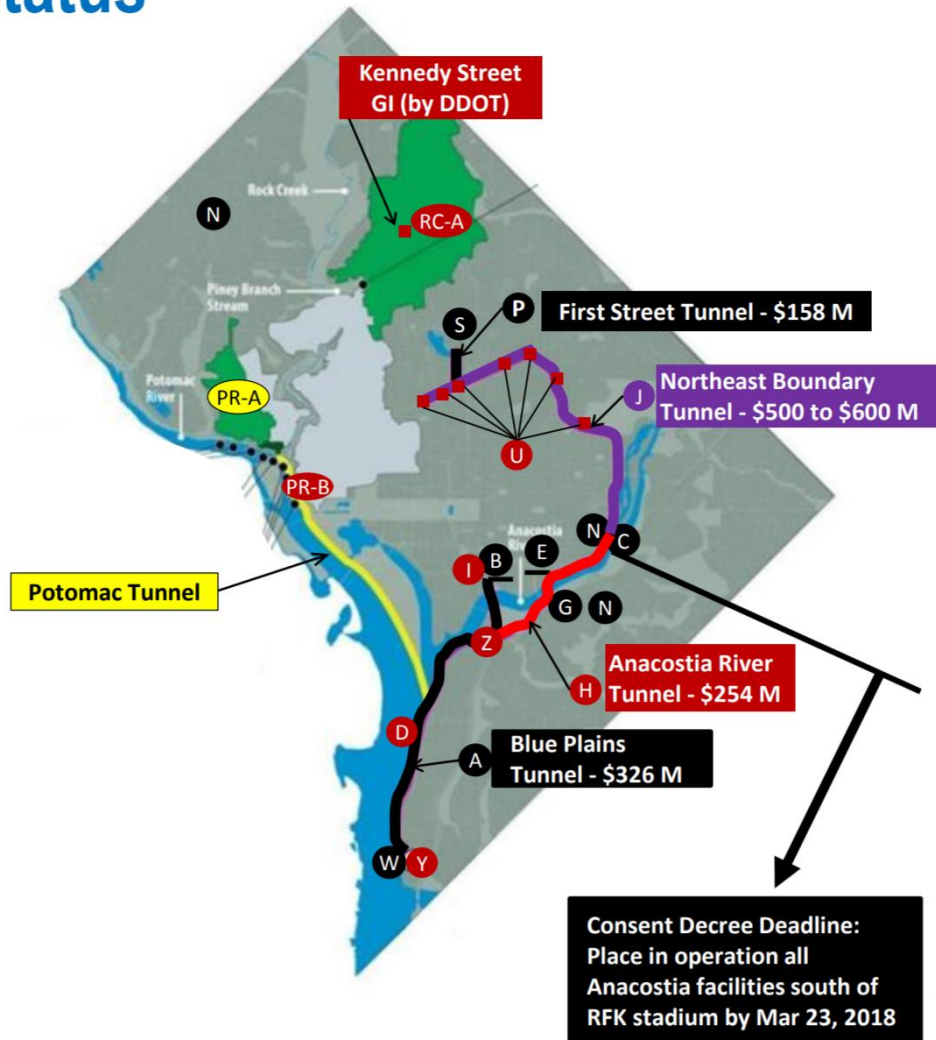
Financing Stormwater Programs/Pay for Success

Maureen M. Holman
Sustainability Chief

November 29, 2017

Clean Rivers Project Status

Division	Name
Completed Projects ████	
W	Blue Plains Tunnel Site Prep
A	Blue Plains Tunnel
C	CSO 019 Overflow and Diversions
B	Tingey Street Diversions
E	M Street Diversion Sewer
G	CSO 007 Diversion Facilities
N	Low Impact Development @ DC Water Facilities
P	First Street Tunnel
S	Irving Street Green Infrastructure
Projects in Construction ████	
H	Anacostia River Tunnel
D	JBAB Overflow & Diversion Facilities
I	Main Pumping Station Diversions
U	Northeast Boundary Utility Relocations
Z	Poplar Point Pump Station & MOS Diversion
Y	Blue Plains Tunnel Dewatering Pumping Station and Enhanced Clarification Facility (Managed by DWE)
PR-B	CSO 021 Diversions at Kennedy Center
RC-A	Rock Creek Green Infrastructure Project A
RC-B	Kennedy Street Green Infrastructure (by DDOT)
Projects in Procurement ████	
J	Northeast Boundary Tunnel – plan to submit contract for EQ & Operations Committee approval at next meeting
Projects in Planning or Design ████	
PR-A	Potomac River GI Project A
--	Potomac Tunnel EIS



Innovations in Infrastructure Funding at DC Water

Environmental Impact Bond (EIB)

Executive Summary

 Goldman Sachs

- **DC Water is structuring an Environmental Impact Bond (EIB) to finance the first project (Rock Creek Project A or “RC-A”) in the DC Clean Rivers Project’s Green Infrastructure (GI) Program**
 - Investors will be repaid based upon the effectiveness of GI in managing the volume of stormwater runoff in RC-A
 - The intended and express purpose of the environmental impact bond (EIB) is to mitigate the financial risk of loss associated with a failure of green infrastructure to manage stormwater runoff as expected
- **The expected costs of issuance (COI) are significantly lower for the EIB than for a comparable traditional, tax-exempt financing**
- **The expected all-in true interest cost (TIC) for the EIB is comparable to a traditional, tax-exempt financing**
- **Accordingly, the EIB represents a cost-effective financing solution to manage a portion of the risk associated with implementing GI as a stormwater management practice**

**District of Columbia Water and Sewer Authority
Public Utility Subordinate Lien Revenue Bonds Series 2016B
(Environmental Impact Bonds)**

Summary of Key Terms and Participants

Par Amount	\$25,000,000
Use of Proceeds	Construction of green infrastructure for Rock Creek Project A (RC-A)
Tax Status	Tax-exempt
Bond Structure	Multimodal variable rate bonds, initially issued in a term mode at a fixed rate through the mandatory tender date
Contingent Payment	Payable (if due) at mandatory tender date
Security Pledge	Subordinate lien pledge of Net Revenues
Final Maturity	October 1, 2046
Mandatory Tender	April 1, 2021
Initial Term Rate	3.43%
Investors	Goldman Sachs Urban Investment Group Calvert Foundation
Investors' Counsel	Orrick, Herrington & Sutcliffe LLP
Bond Counsel	Squire Patton Boggs LLP
Financial Advisor	Public Financial Management, Inc.
Technical Advisor	Harvard Kennedy School Government Performance Lab
Pay for Success Transaction Coordinator	Quantified Ventures

Program Evaluation

DC Water is conducting a rigorous, three-step program evaluation of the effectiveness of green infrastructure in managing stormwater runoff:

- Step 1 - Pre-construction monitoring to measure the existing stormwater runoff without green infrastructure.
- Step 2 - With results from the pre-construction monitoring and DC Water's green infrastructure design plan for RC-A, DC Water established outcome ranges predicting the expected reduction in stormwater runoff. An independent engineering firm selected by the investors confirmed these ranges.
- Step 3 - Post-construction monitoring to measure the actual stormwater runoff with green infrastructure.

Paying for Success

By comparing the actual stormwater runoff to the existing stormwater runoff, DC Water will calculate the effectiveness of green infrastructure in Rock Creek Project A as measured by the percentage reduction in stormwater runoff and determine the associated Performance Tier, which may trigger a contingent payment on the EIB.

Performance Tier	Outcome Ranges	Contingent Payment
1	Runoff Reduction > 41.3%	DC Water will make an Outcome Payment to Investors of \$3.3 million.
2	18.6% <= Runoff Reduction <= 41.3%	No contingent payment due.
3	Runoff Reduction < 18.6%	Investors will make Risk Share Payment to DC Water of \$3.3 million.

Division RC-A: Rock Creek GI Project A



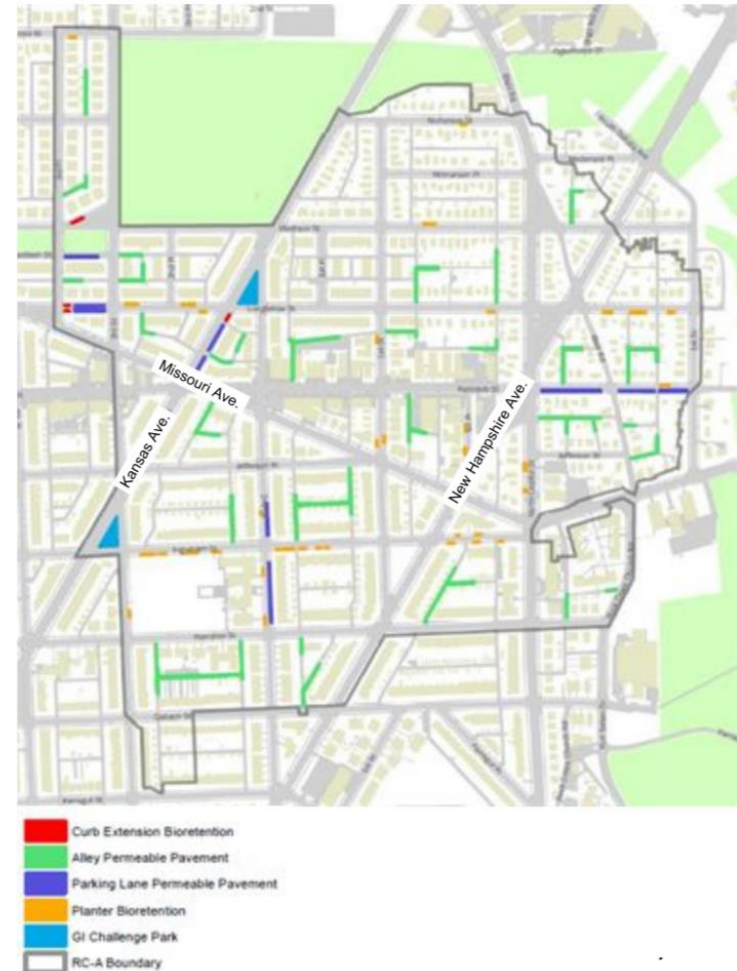
Key Map

Project Schedule:

Item	Status
Request For Proposal (RFP) Development	Complete
Procurement	Complete
Design-Build Notice to Proceed	Complete - February 2017 (CD deadline Mar 30, 2017)
Place in Operation	CD Deadline Mar 30, 2019

- Project facilities to be designed, permitted, and constructed in three phases:
 - Phase 1: 60% design for five facilities submitted for permitting review April 24, 2017

Project Boundary:





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Environmental Impact Bonds

Recognition within the World of Finance



GOVERNMENT FINANCE OFFICERS ASSOCIATION
NEWS RELEASE

The Award for Excellence in **Capital Financing and Debt Administration** was awarded to the District of Columbia Water and Sewer Authority (DC Water), for its **Environmental Impact Bonds**.

DC Water issued the nation's first environmental impact bonds to fund the inaugural project for its green infrastructure program. The green infrastructure program is designed to help control the combined sewer overflow issues on major waterways in the DC area. The environmental impact bonds will not only fund the initial project, but also help to mitigate the risk associated with whether or not this initial project meets DC Water's stormwater management requirements. The environmental impact bond's rate of return depends on the infrastructure meeting these requirements, where investors will only be paid if the standards are met and if standards are not met, investors will make a risk share payment back to DC Water.

Innovations in Infrastructure Funding at DC Water

Green Century Bonds

DC Clean Rivers Project Overview

- **Clean Rivers Project is DC Water's long term control plan for combined sewer overflows (CSO's)**
 - Federally mandated consent decree; \$2.6 billion; 20-year project (2025)
 - Comprises a series of three tunnel systems designed to transport CSOs to Blue Plains for treatment
 - When fully implemented, CSOs will be reduced by a projected 96%

- **Investment in extraordinarily long-lived infrastructure assets**
 - All three tunnel systems are designed to achieve a minimum 100-year service life
 - Minimal mechanical equipment – tunnel systems are designed to operate by gravity
 - Minimal maintenance required – inspection once every 10 years
 - Useful life of 100 years is certified by Registered Professional Engineers and an Independent Engineering Opinion

First Century Bond Issued by a Water/Sewer Utility

■ Asset-liability matching

- Financing targeted to a one-time expansion of system capacity
- Not routine repair and replacement of traditional infrastructure assets (e.g., pipes)

■ Intergenerational equity and fairness

- Financing plan amortizes the costs more affordably and fairly over the generations of customers and ratepayers who will benefit
- Potential for near-term cashflow savings versus more traditional financing structures

■ Committed, long-term, low-cost capital

- Absolute and relative interest rates remain at historic lows
- Eliminates interest rate and market access risk versus alternative options

First “Certified” Green Bond in U.S.



■ DC Water’s Inaugural Green Bond Issue

- Dedicated use of proceeds exclusively financing Clean Rivers Project
- Expand and diversify the Authority’s investor base by targeting SRI (socially responsible investment) funds
- Alignment with DC Water’s mission and purpose as a steward of the environment

■ Independent 3rd Party Opinion

- **Vigeo** is one of the leading sustainability consultants and Green Bond opinion providers
- Evaluated Clean Rivers Project eligibility against core outcomes:
 - **Water Quality** – projected 96% reduction in CSOs from current level of 2 billion gallons/year
 - **Climate Resilience** – overland flood mitigation in low lying areas of the District of Columbia (e.g., Bloomingdale)
 - **Quality of Life** – promotion of biodiversity, removal of harmful nutrients from waterways, waterfront restoration





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Green Century Bonds

National Recognition in the Press

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Shale-Oil Producers Ready to Raise Output



Investors Down on Turnaround



CREDIT MARKETS



Washington, D.C., 'Green' Bond Greeted With Strong Investor Demand

District of Columbia Water and Sewer Authority Sells \$350 Million in 100-Year Bonds

By MIKE CHERNEY

Updated July 10, 2014 5:41 p.m. ET

Investors are placing a 100-year bet on the water and sewer system in the nation's capital.

Climate Bonds

INITIATIVE

Mobilizing debt capital markets for climate change solutions

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DC Water issues AA+ \$350m 'green century bond' – yes that's right, the very first 100 year green bond! Now THAT is tenor. Plus, it's the first US green bond to get an independent review – at last!

Posted: Jul 15, 2014 by Sean Kidney

District of Columbia Water[®] have just announced[®] the close of the first 100 year maturity 'green century bond' to finance water projects. Yes, you read that right, 100 years!

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dc Doing more with your dollar

CIPP sewer lateral repair trenchless technology

- Minimal customer disruption
- No excavation
- Extended service life
- Program saved ratepayers \$1.3 million in 2015

Multi-year rates

- Predictable rates allow customers to plan
- Increases budget discipline – water and sewer rate increase limited to 5% for FY17 & FY18
- Favored by credit rating agencies – lower borrowing costs

Bailey Bioenergy Facility

- Reduced biosolids hauling from 55 truck loads per day to 20 truck loads per day.
- Reduction saves over \$10 million per year



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in
place**

Innovations in Infrastructure Funding at DC Water

Q & A

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