Washington D.C.'s Stormwater Retention Credit Program & Environmental Impact Bond

Water Infrastructure and Resiliency Finance Center
Holly Galavotti & Kristyn Abhold
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Water Infrastructure and Resiliency Finance Center

The Water Finance Center is an **information and assistance center**, helping communities make informed decisions for **drinking water, wastewater,** and **stormwater infrastructure** to protect human health and the environment.

Research

Identify financial solutions to help communities meet infrastructure needs.

Advise

Provide expertise and add value to the national water infrastructure conversation.

Innovate

Provide advice, support, and technical assistance to stakeholders.

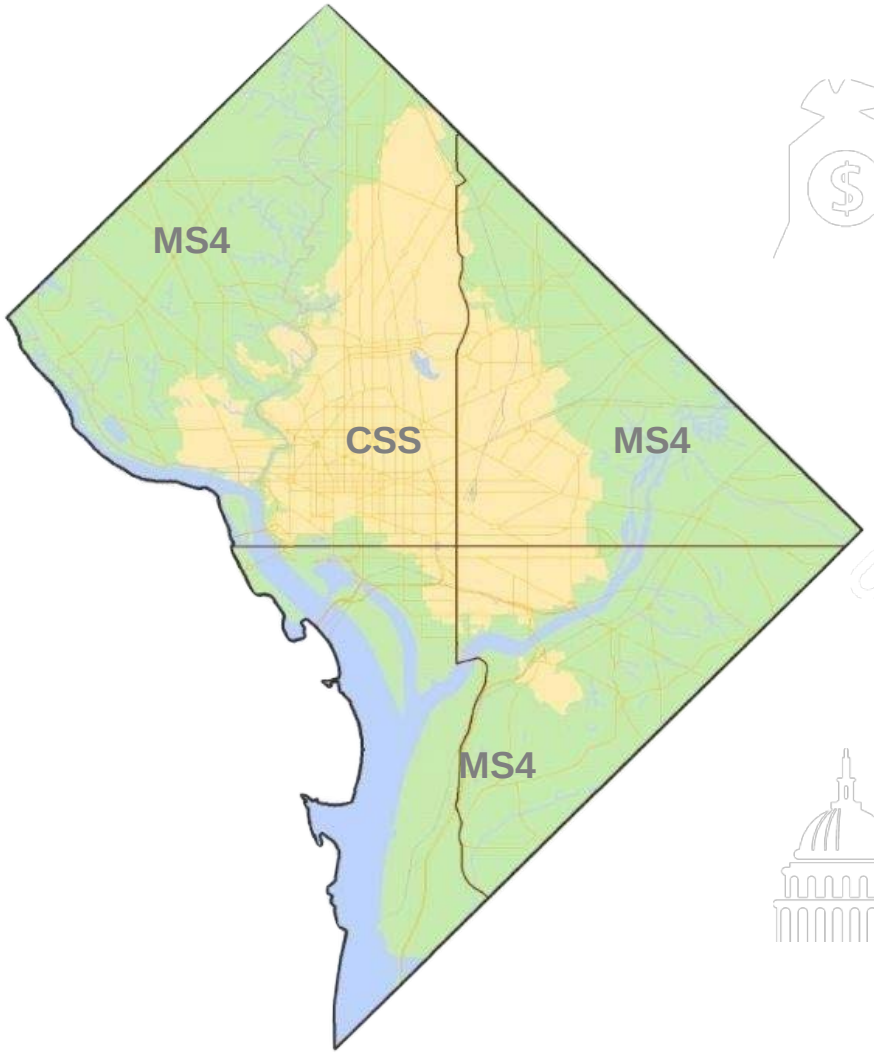
Network

Build relationships with government partners and stakeholders.

D.C.'s Innovative Approach

1. Overview of D.C.'s CSO and MS4
2. Department of Energy and Environment (DOEE) Stormwater Retention Credit (SRC) Program
3. DC Water Environmental Impact Bond (EIB)
4. Learn More

1 D.C. Stormwater Systems



- Combined Sewer System
  - 1/3 of District
  - 3.2B gallons of sewage and stormwater overflows annually
  - $2.6B+ capital project
  - Largely funded by rate payers
- Municipal Separate Storm Sewer System (MS4)
  - 2/3 of District
  - Direct discharge without treatment
  - $7B+ green build-out
  - $18M/year public investment

2 D.C. DOEE Stormwater Programs

Green infrastructure investment on public property

- Transportation right-of-way
- Public buildings and parking lots

Subsidies for Private Sector – reduction on SW Fee & other benefits

- RiverSmart Homes
- RiverSmart Roofs
- RiverSmart Communities
- RiverSmart Schools

2 D.C. DOEE Stormwater Retention Standards

Major land-disturbing activity

- 5,000 ft^2 or more of land-disturbing activity
- Retain the first 1.2” of rainfall on site or through a combination of on-site and off-site retention.

Major substantial improvement activity renovation for which:

- Cost exceeds 50% pre-project value of structure and combined footprint of structure and land disturb ≥ 5,000 ft^2
- Retain the first 0.8” of rainfall on site or through a combination of on-site and off-site retention.

On-site retention ≥ 50% of volume

- Free to go off site

On-site retention < 50% of volume

- Must prove that on-site retention is technically infeasible or environmentally harmful

2 D.C. DOEE Stormwater Retention Standards

- Most regulated development in District is redevelopment
- Redevelopment (1% of land area) driving gradual transformation of DC's 43% impervious land cover

Total area subject to SW regulations annually
(15 Mill SF - @ 1% of land)

Total area retrofitted with retention
via DOEE direct investment annually

10 : 1

2 D.C. DOEE Stormwater Retention Credit Program

Stormwater Retention Credit (SRC) Accelerates Green Infrastructure

- Privately tradable
- 1 SRC corresponds to 1 gallon of retention for 1 year
- 1 SRC achieves 1 gallon of offsite volume for 1 year
- Each SRC has a unique serial number
- Buyer and seller negotiate price (average in 2016 = $1.85)

In-lieu fee (ILF) payment

- Paid to DOEE
- Corresponds to 1 gallon of retention for 1 year
- Achieves 1 gallon of Offsite volume for 1 year
- Adjusted annually for inflation (current price = $3.58)

Stormwater Database

Tracks regulated & voluntary projects

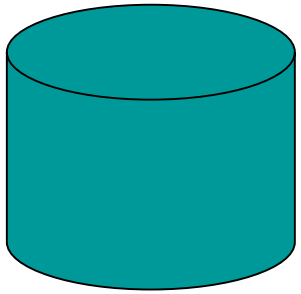
Includes online applications and the SRC and Offsite Registry

http://doee.dc.gov/swdb

2 D.C. DOEE Stormwater Retention Credit Program

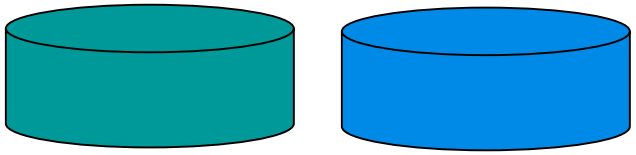
Credit Program can increase retention – **Same** Retention for 1.2” storm

Strict On-Site



10,000 gallons

Trading

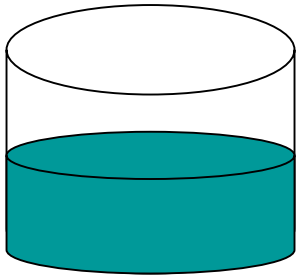


5,000 + 5,000 = 10,000 gallons

2 D.C. DOEE Stormwater Retention Credit Program

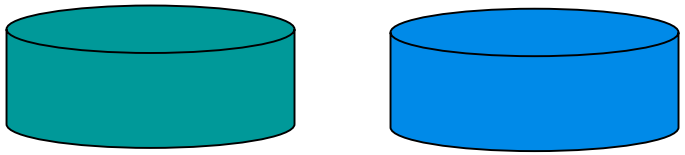
Credit Program can increase retention – **Greater** Retention for smaller storms
90% of storms in Washington DC are less than 1.2”

Strict On-Site



5,000 gallons

Trading



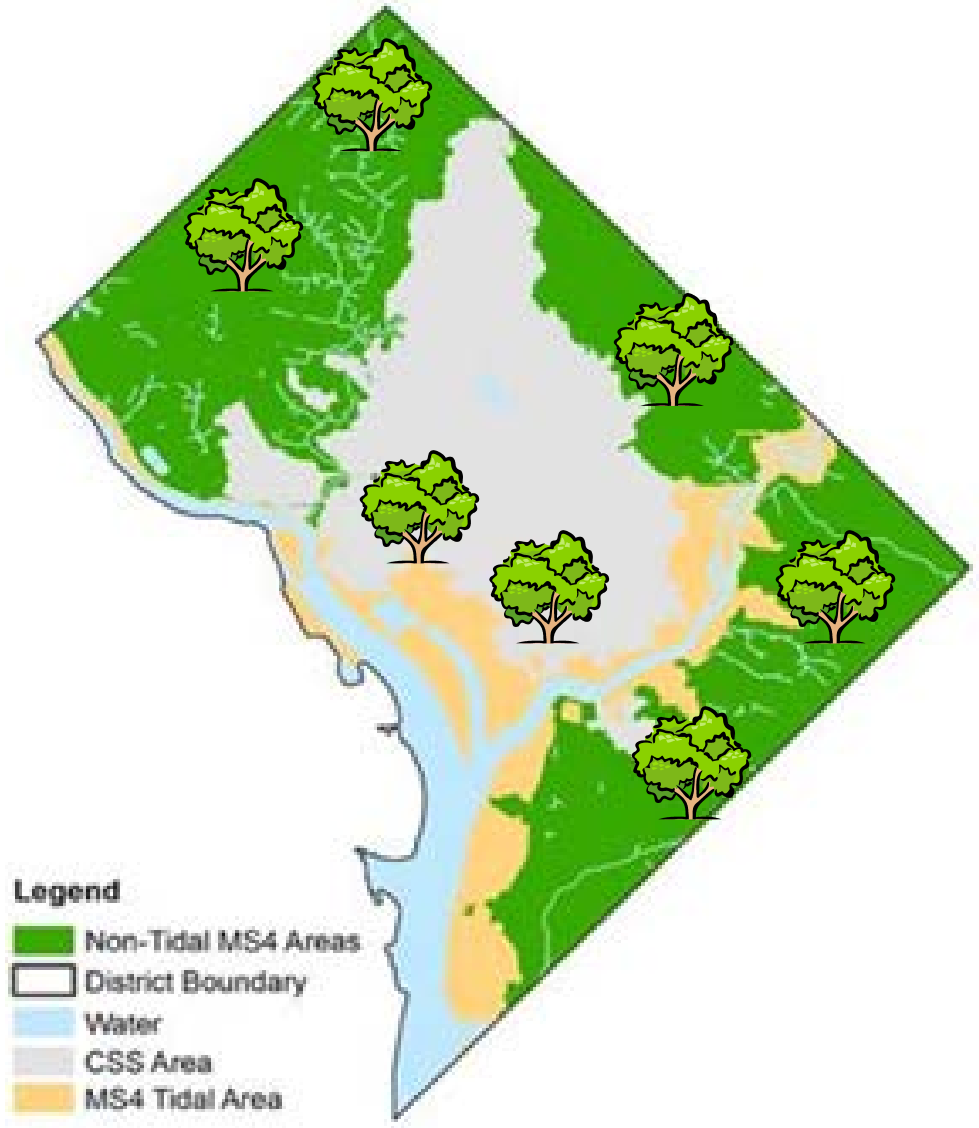
5,000 + 5,000 =
10,000 gallons

This scenario yields 57% increase in annual retention.

2 D.C. DOEE Stormwater Retention Credit Program

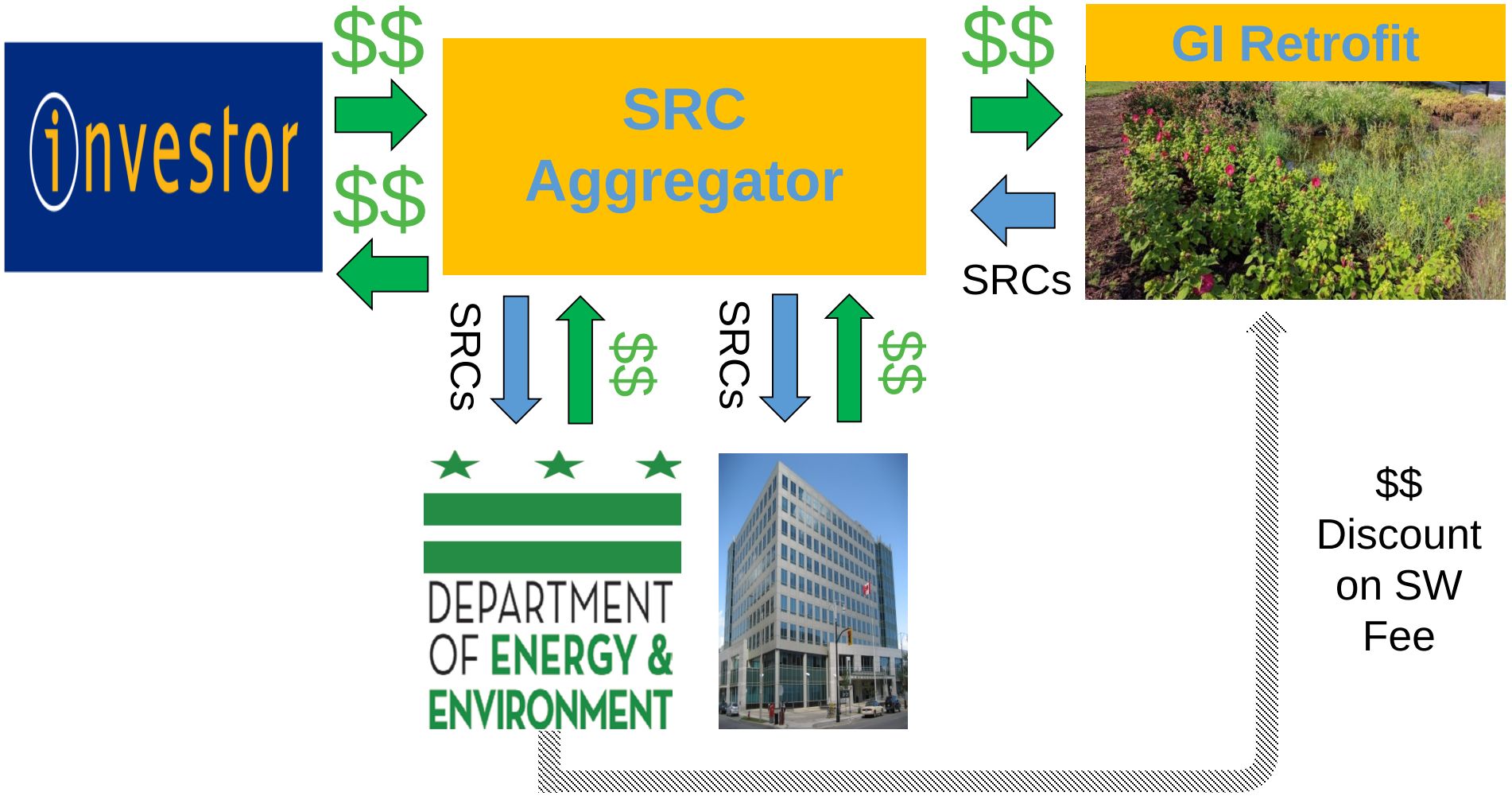
Benefits to Watershed

- Increased annual retention District-wide.
- Increased capture of first-flush volume.
- Shift retention GI to most vulnerable tributaries and improve socioeconomic outcomes.



2 D.C. DOEE Stormwater Retention Credit Program

Leveraging private capital via DOEE SRC Purchase Program



2 D.C. DOEE Stormwater Retention Credit Program

Properties may receive discounts for retention up to the 1.2” storm and SRCs for retention up to the 1.7” storm.

Potential 10-Year Financial Return on Retention BMP - SRC Revenue and Discount on Impervious Fees												
Assuming installation of BMP to retain 1.7" of stormwater from 1000 square feet of impervious area												
	Rate	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Year Total
Max Discount – DC Water IAC	4%	$5	$6	$8	$10	$11	$12	$13	$14	$15	$15	**$107**
Max Discount – SW Fee	55%	$18	$18	$26	$26	$26	$26	$33	$33	$33	$33	**$273**
Projected Value of SRCs (inflation-adjusted at 3.5%/year)	$1.85	$1,863	$1,928	$1,996	$2,065	$2,138	$2,213	$2,290	$2,370	$2,453	$2,539	**$21,855**
Total		$1,886	$1,952	$2,030	$2,101	$2,175	$2,251	$2,336	$2,417	$2,501	$2,587	$22,235

2 D.C. DOEE Stormwater Retention Credit Program

SRC Market Data

Trades

- 11 trades overall
- 56,229 SRCs purchased
- $109,748 in sales
- 8 in 2016 at average $1.85/SRCs

FY16 Supply

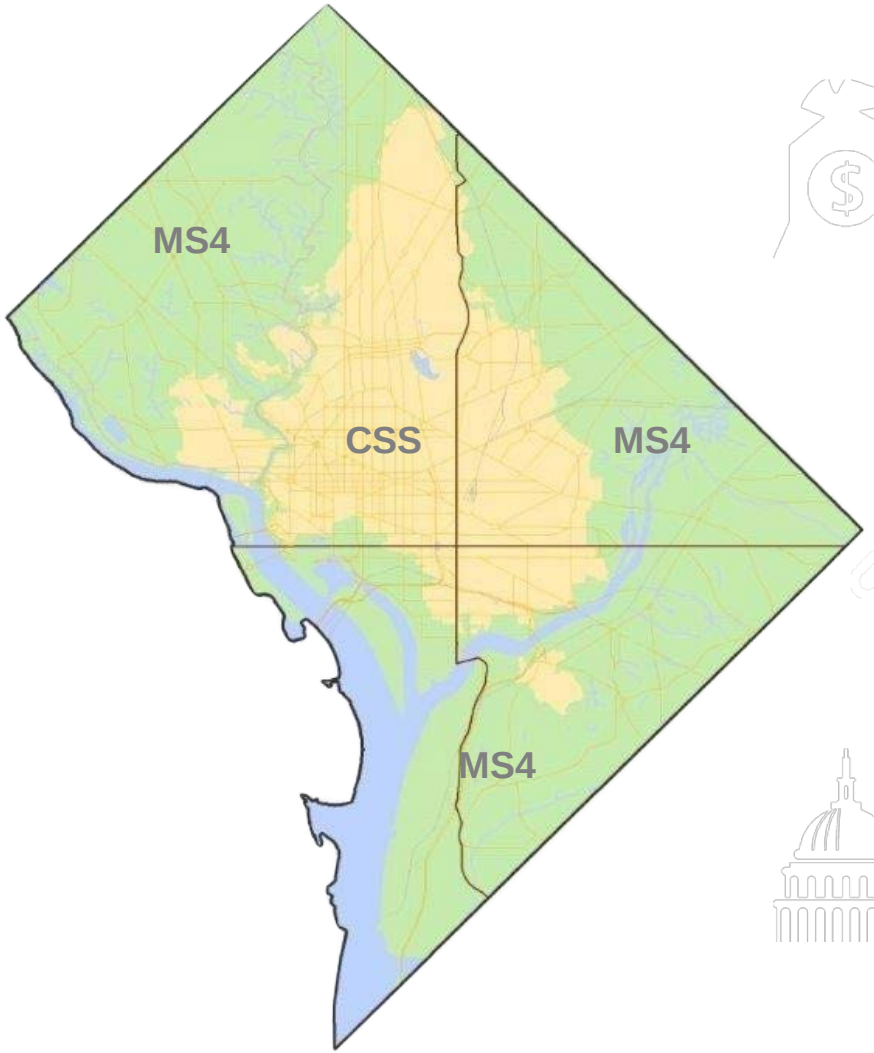
- 278,872 SRCs Certified in FY16

Demand

- Approximately 12% of regulated sites (40 projects) have opted to meet some of their retention obligation off-site
- 12 have completed construction or are approaching their final inspection
- Approximately 255,000 gallons of annual demand

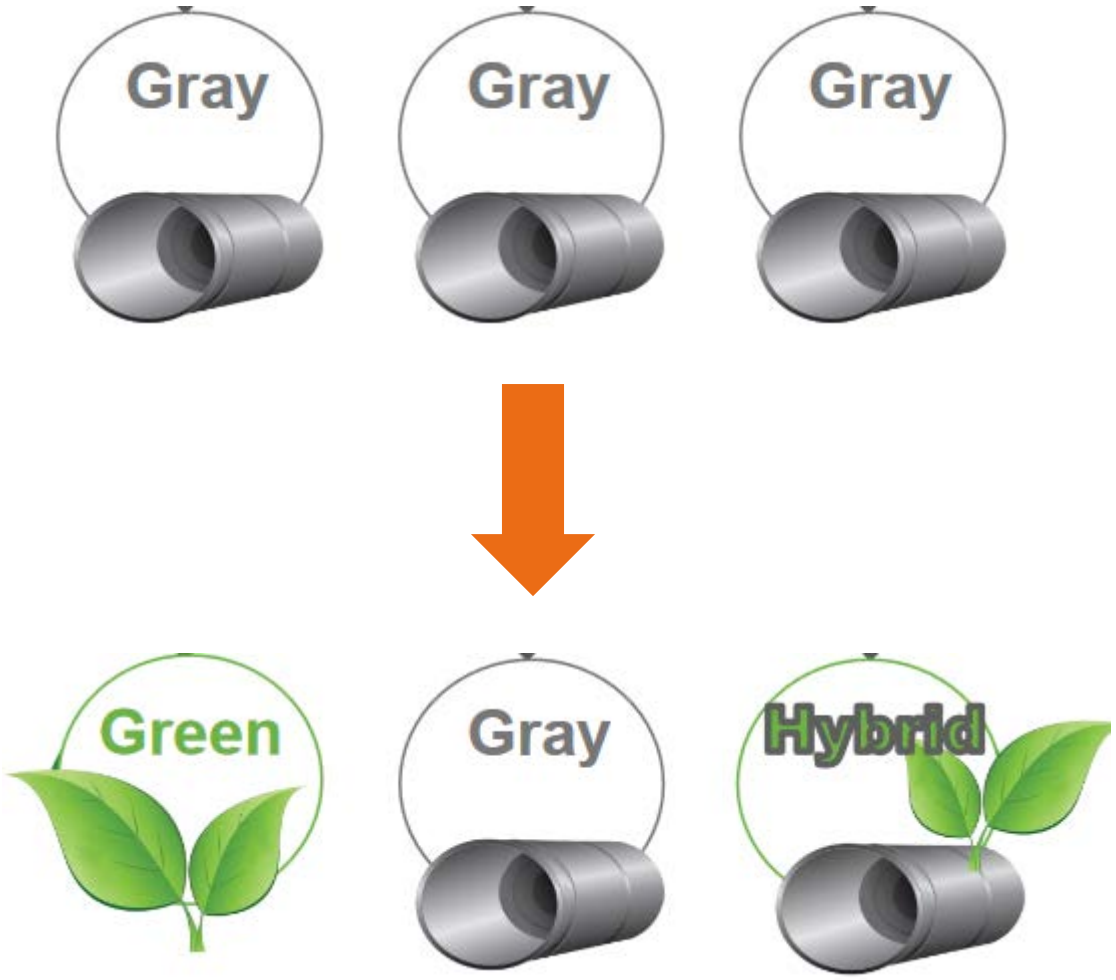
79% of SRCs generated in MS4 to meet demand in CSS.
21% of SRCs generated in MS4 to meet demand in MS4.

3 DC Water Environmental Impact Bond (EIB)



- Managed by DC Water
- Long Term Control Plan for CSOs
- $2.6B+ capital project
- Largely funded by rate payers

3 D.C.'s Long Term Control Plan

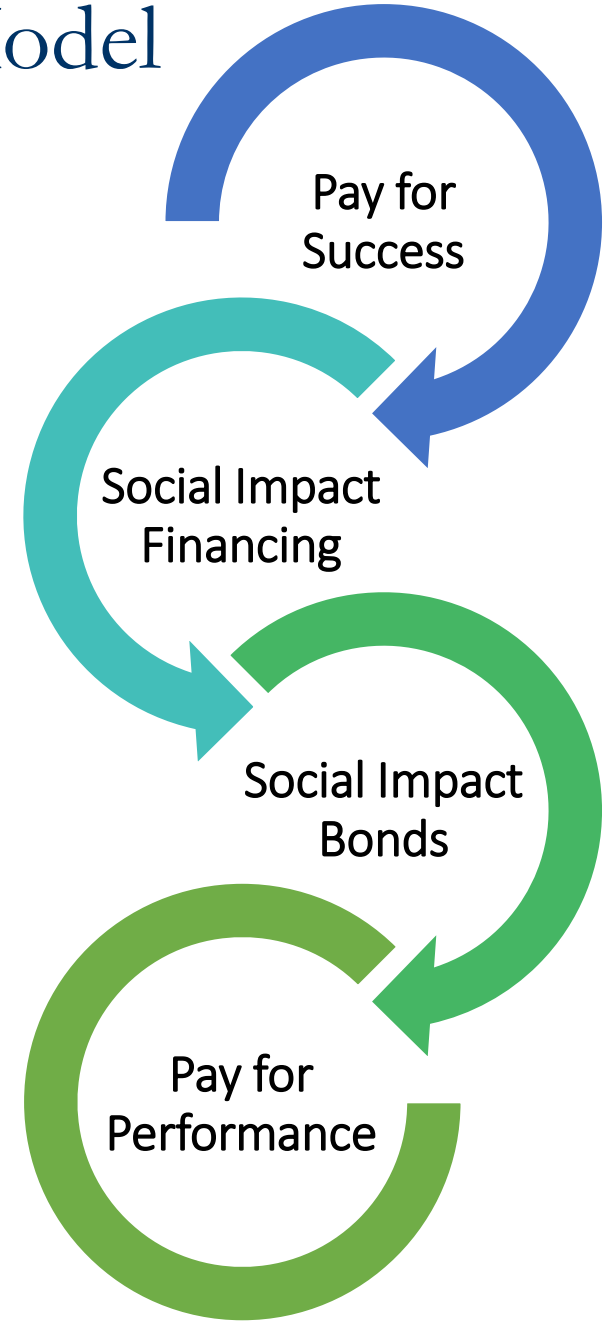


- 2016 **modification of LTCP** to allow for GI
- **Replace gray infrastructure** with approx. 300 acres and $90 million of GI
- This modification represents a significant cost saving – but comes with **performance risk**

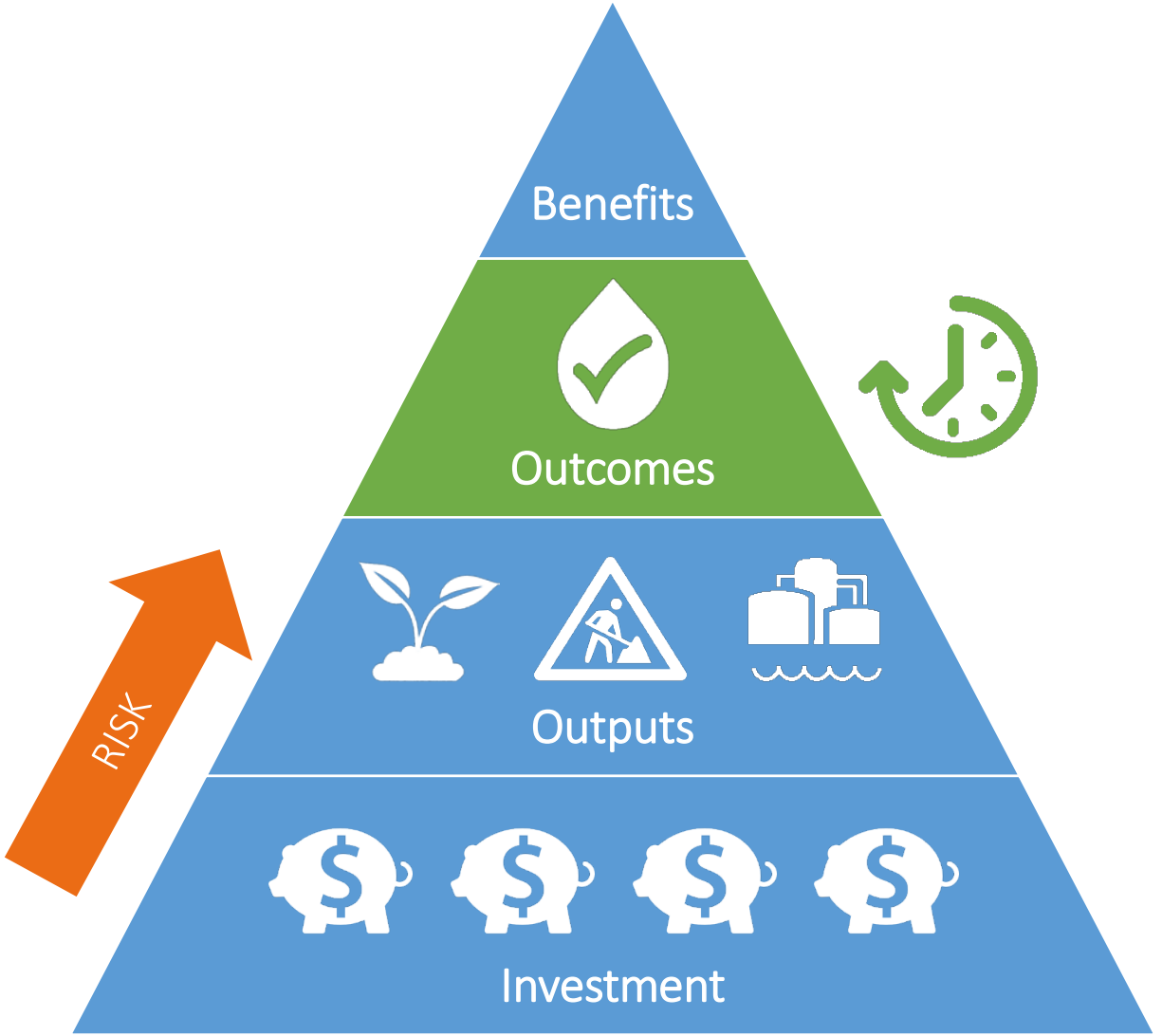
3 DC Waters EIB is a Pay for Success Model

- **Pay for Success**: Form of performance-based contacting for ***outcomes*** between government and the private sector.

- **Social Impact Financing**: Financing that supports pay for success. "Social Impact Bonds" are a type of social impact financing.



3 Pay for Success Takeaways

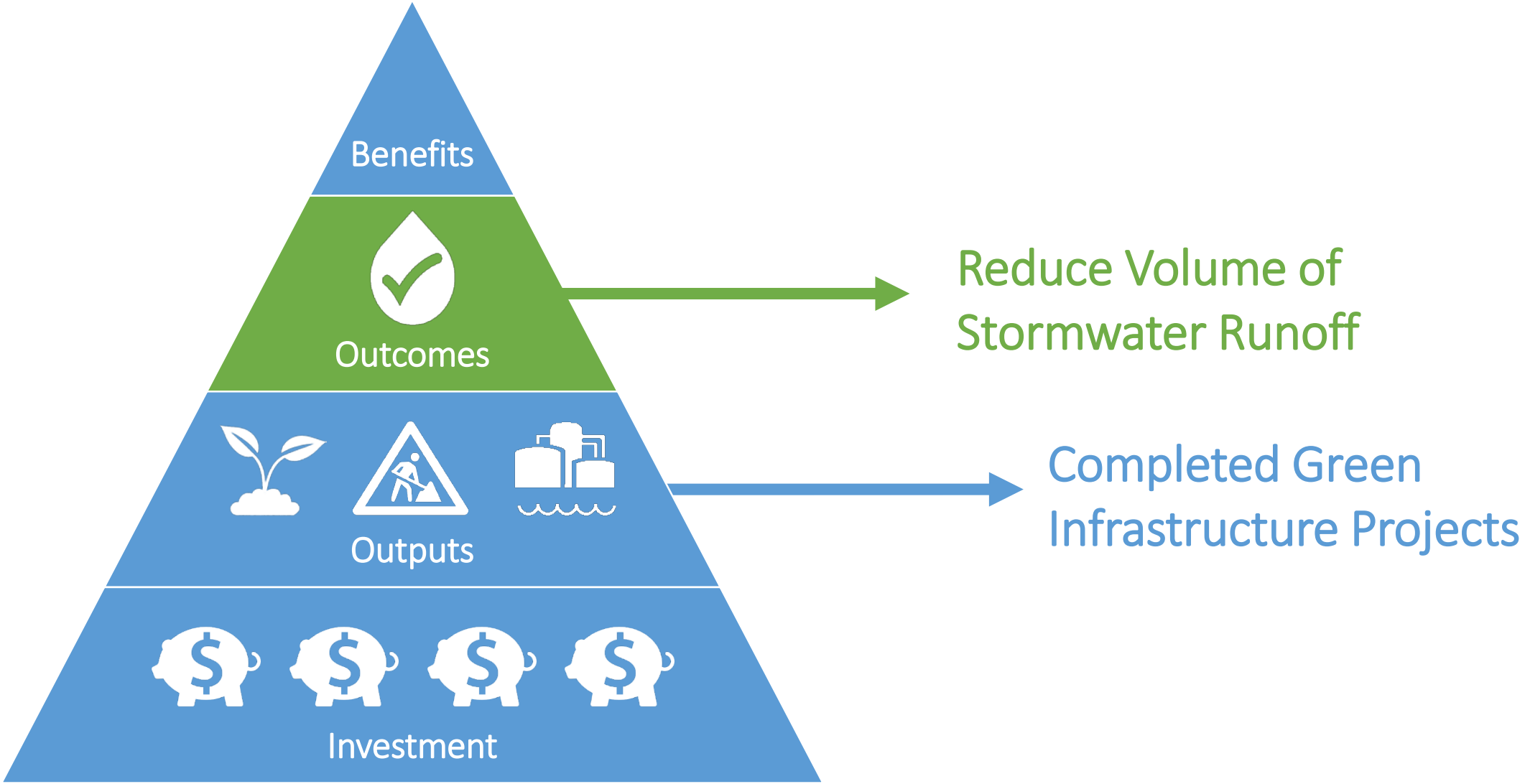


PFS requires public-private collaboration focused on **OUTCOMES** not **OUTPUTS**

Successful **outcomes** are determined by **rigorous measurement** after project completion

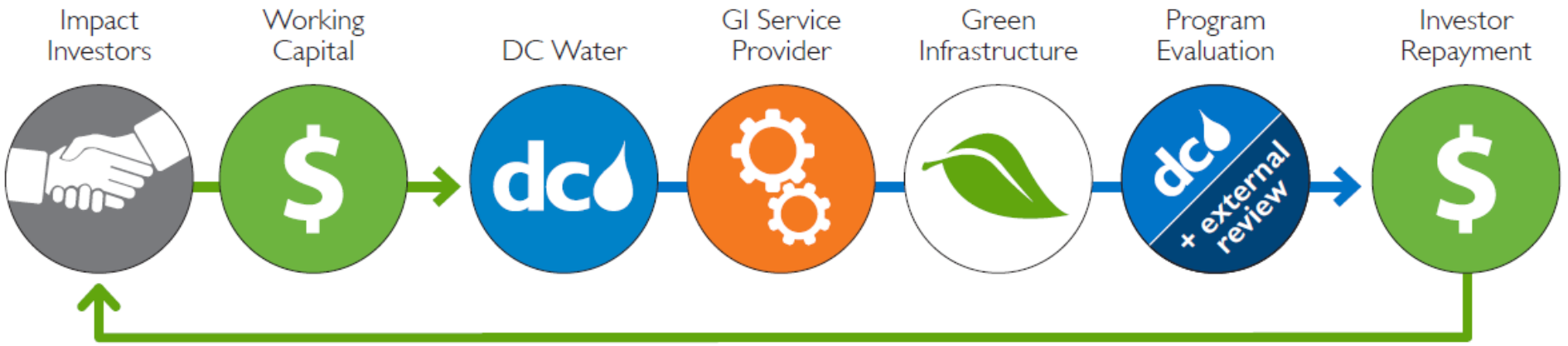
Investors bear the majority of **up-front risk** - government pays only when results are achieved

3 DC Water's Desired Outcome and Outputs



3 DC Water Environmental Impact Bond (EIB)

- DC Water structured their EIB to finance first two of eight GI projects
- The express purpose of the EIB is to **mitigate risk of financial loss** associated with a failure of GI
- Investors will be repaid based on **measured effectiveness** of GI



3 DC Water Environmental Impact Bond (EIB)

	Year 1	Year 2	Year 3	Year 4	Year 5
Work Flow DC Water	Flow Meters Installed to Determine Baseline Flows	Green Infrastructure Implemented (i.e., sites identified, interventions constructed)		Flow Meters Re-Installed to Measure Outcomes	Evaluation Validated to Trigger Payments

	Year 1	Year 2	Year 3	Year 4	Year 5
Financial Flows	$25M Principal Issued to DC Water	Interest Payments at 3.43% from DC Water to Investors			$25M Principal Repaid from DC Water

3 DC Water Environmental Impact Bond (EIB)

Performance	Outcome	Payment	Expected Likelihood	DC Water & Green Infrastructure
GI Over Performs	Runoff reduced > 41.3%	DC Water makes "Outcome Payment" of $3.3 million to investors	2.5%	Cost savings – less GI needed and future GI projects downsized. - or - Accelerate scale, deployment of GI
GI as Expected	Runoff reduced as expected 18.6% < reduction < 41.3%	Neither party makes a contingent payment	95%	Continue original GI plan with confidence
GI Under Performs	Runoff Reduced < 18.6%	Investors make "Shared Risk Payment" of $3.3 million to DC Water	2.5%	Scale back GI, remediate GI or deploy gray infrastructure

4 Learn More

- April 11th: Water Finance Center releasing an **in-depth technical report** of DC Water's EIB

- Download: www.epa.gov/waterfinancecenter

DC Water's Environmental Impact Bond: A First of its Kind

U.S. EPA Water Infrastructure and Resiliency Finance Center
April 2017

Background

A third of Washington, DC is serviced by a combined sewer system. In 2005, EPA and the District of Columbia Water and Sewer Authority ("DC Water") entered into a Consent Decree ("CD") with a 20-year Long Term Control Plan ("LTCP") with an estimated $2.6 billion in planned investments to reduce CSOs ("Combined Sewer Overflows"). In 2015, DC Water renegotiated its CD and LTCP to incorporate large-scale Green Infrastructure ("GI") installations to replace one of three deep tunnels that were part of the original LTCP. The new CD requires DC Water to manage stormwater runoff produced by 1.2" of rainfall on 365 impervious acres of land in the Rock Creek Sewershed and 133 impervious acres in the Potomac River Sewershed.

As part of its green infrastructure investment strategy, in September 2016, DC Water issued an Environmental Impact Bond ("EIB")[1] pursuant to the terms of a Private Placement Agreement ("PPA"). The EIB terms negotiated with investors reflect key elements of the "Pay for Success" model used to pilot outcome-based initiatives in the social policy space. Pay for Success is a form of performance-based contracting between a public entity and the private sector where payment is based on measured outcomes. The DC Water EIB represents the first use of the Pay for Success model in the water space and the first to be issued as a tax-exempt municipal bond. DC Water's stated purpose for using this model was to isolate project performance risk associated with its initial investment in green infrastructure on public properties.

The Water Finance Center has reviewed the terms of this transaction as part of its mandate to identify and communicate the value of innovative financing practices. The DC Water EIB represents a new financial structure that could serve as a model for utilities throughout the water sector.

Overview of the Transaction

Financing Structure

The EIB is a 30-year tax-exempt municipal bond with a mandatory tender in year five. The bond issue was placed with two institutional investors, Goldman Sachs Urban Investment Group and Calvert Foundation (the "investors"). The bonds were issued at a $25 million face value and an initial 3.43% interest coupon, payable semiannually, for the first five years. The stated maturity date is October 1, 2046. The mandatory tender date is April 1, 2021.

DC Water's EIB payment obligation is subordinate to its obligation on its publicly issued bonds. This means that on regularly scheduled interest payment dates as well as the mandatory tender date, the EIB payment obligation can only be met if DC Water has provided for full scheduled payments on the outstanding senior obligations.

At the five-year mandatory tender, there is provision for a $3.3 million payment, payable to investors by DC Water or to DC Water by investors, contingent on the relative success or failure of the project. If the GI produces stormwater runoff reductions

[1] EIBs are modeled on Social Impact Bonds ("SIBs") which represent an innovative finance mechanism that seeks to mobilize private capital investors to supplement public investment dollars. In the social impact bond model, the private sector works with governments and philanthropies to fund critical prevention-focused social programs that help address prison recidivism, homelessness, early childhood education etc. In this public-private partnership, investors are only repaid if and when improved social outcomes are achieved. This idea is the core of the Pay for Success delivery model. See: www.rockefellerfoundation.org/our-work/initiatives/social-impact-bonds.

4 Learn More

EPA and WEF co-hosting **Stormwater Finance Webinar Series**:

- May 11th – **D.C. Environmental Impact Bond**
- May 23rd – **D.C. Stormwater Crediting Program**
- Summer 2017 – **Setting up a Stormwater Utility**
- Summer 2017 – **Tax Credits and Incentives**

Register: www.epa.gov/waterfinancecenter/water-finance-webinars-and-forums

Contact

Holly Galavotti
U.S. EPA
202.564.1489
Galavotti.holly@epa.gov

Brain Van Wye
D.C. Department of Energy & Environment
202.741.2121
brian.vanwye@dc.gov

Kristyn Abhold
U.S. EPA
202.573.3280
abhold.kristyn@epa.gov

Eric Letsinger
Quantified Ventures
202.734.3712
letsinger@quantifiedventures.com