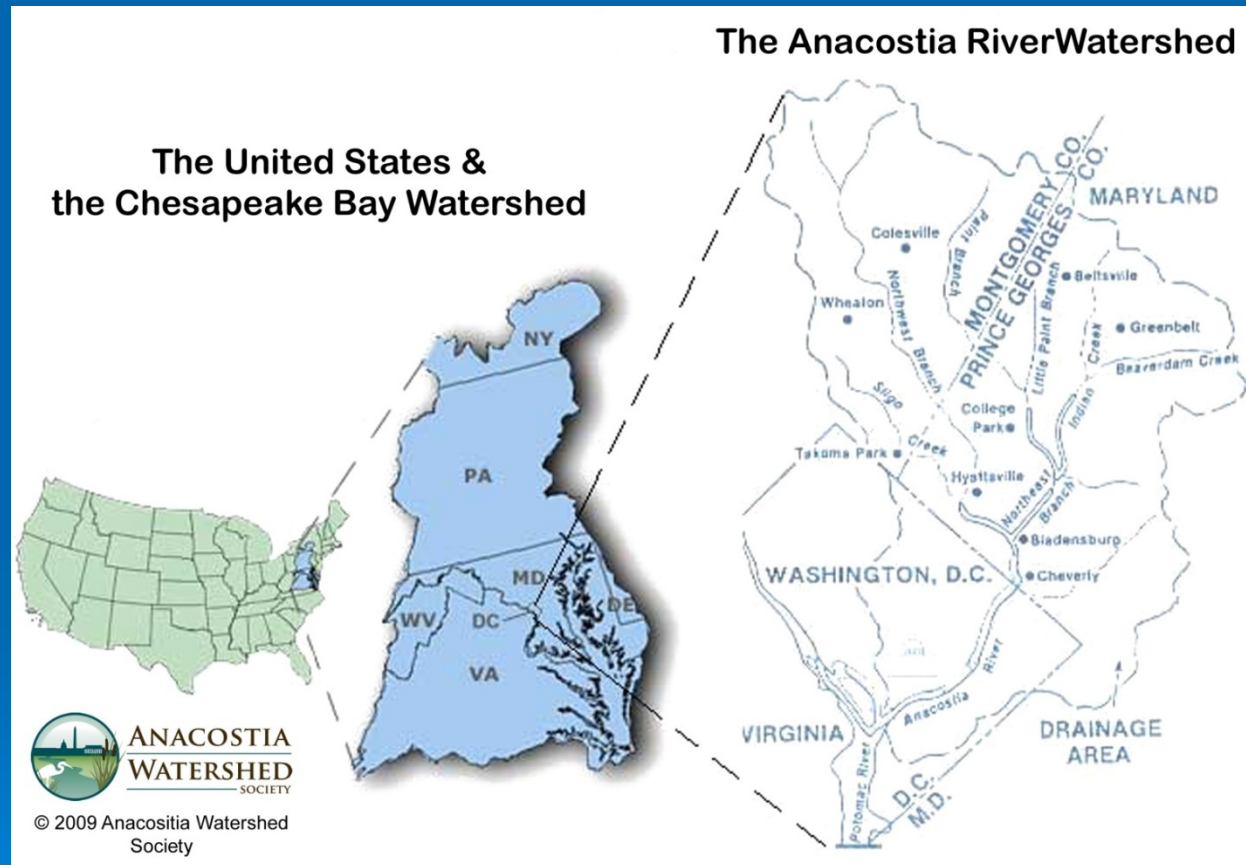


Stormwater Retention Credit Trading and Green Infrastructure in Washington DC



Brian Van Wye
District Department of the Environment



DISTRICT
DEPARTMENT
OF THE
ENVIRONMENT

Presentation Outline

- Stormwater runoff and new (2013) regulations.
- Regulatory flexibility to use off-site retention.
- Generation of Stormwater Retention Credits (SRCs)
- Potential financial returns - SRCs & SW fee discount.
- Benefits of SRC trading:
 - Stormwater management regulations.
 - Tool for DDOE to achieve stormwater GI.
 - Mechanism to more fully internalize SW externalities.
- DDOE initiatives to facilitate SRC market.

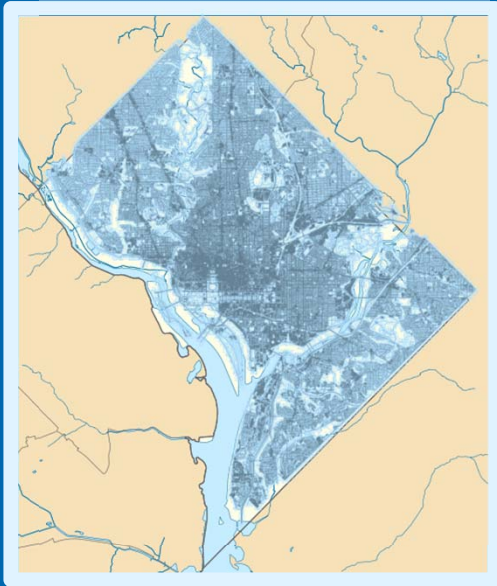
Imperviousness



Stormwater



Degradation



- 43% of the District's land is impervious.
- A single 1.2 inch storm falling on this area produces about 525 million gallons of stormwater runoff.

Impervious Surface Retrofits

- Retain runoff on site to mimic natural land cover.
- Stormwater retention GI gradually makes District “spongier.”
- Essential for long-term restoration of waterbodies.



New Stormwater Management Regulations

Major land-disturbing activity

- 5,000 sf or more of land-disturbing activity.
- Required to retain the first 1.2" of rainfall.
- Detention requirements also apply.

Major substantial improvement activity

- Renovation for which:
 - Cost exceeds 50% pre-project value of structure &
 - Combined footprint of structures & land disturb $\geq 5,000$ sf.
- Required to retain the first 0.8" of rainfall.

Regulated Development Key Driver of Retrofits

- Most regulated development in District is redevelopment.
- Scale of development makes it biggest driver of retrofits and key part of the solution:

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

Total area retrofitted with
retention via DDOE direct
investment annually

10 : 1

- Gradual transformation of DC's 43% impervious land cover.

Flexibility to Use Off-Site Retention

- Free to go off site after achieving 50% of required retention on site.



Impervious surface =
14,000 sf

Total retention required = 10,000 gal.
On-site minimum = 5,000 gal.



Achieving Off-Site Retention Volume

- Offv is an ongoing annual obligation.
- Two options to achieve off-site volume:
 - In-lieu fee (ILF) payment to DDOE = \$3.50/gallon/year.
 - Use of privately tradable Stormwater Retention Credits (SRCs).
- Off-site volume can be:
 - Met on yearly or multi-year basis.
 - Met with a mix of ILF & SRCs and mix can change.
 - Reduced in the future by increasing on-site retention.

Generation of Stormwater Retention Credits

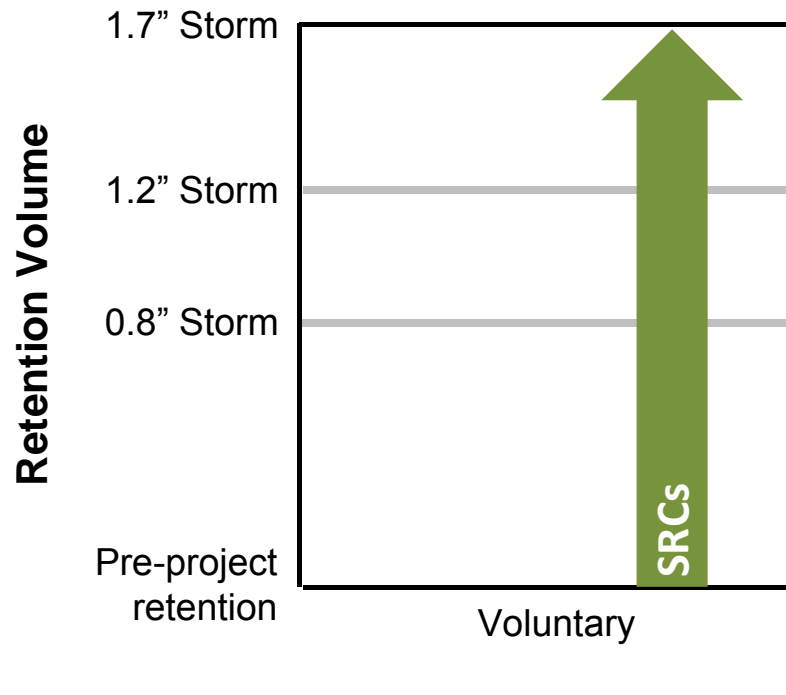
- DDOE is sole SRC-certifying authority.
- DDOE will certify up to 3 years' worth of SRCs every 3 years for eligible retention capacity.
- SRC-retrofits not permanently obligated to that use:
 - No maintenance covenant required.
 - Maintenance obligation can be ended by forfeiting SRCs or purchasing replacement SRCs for DDOE to retire.
- Failure to maintain for time of SRC certification:
 - Original SRC owner must forfeit/replace SRCs or pay ILF.
 - No additional certification of SRCs.
 - Additional enforcement action possible.

Eligibility for SRC Certification

Eligible GI & land cover changes must:

- 1) Achieve retention above existing retention or regs.

Retention Volume Eligibility: Stormwater Retention Credits (SRCs)



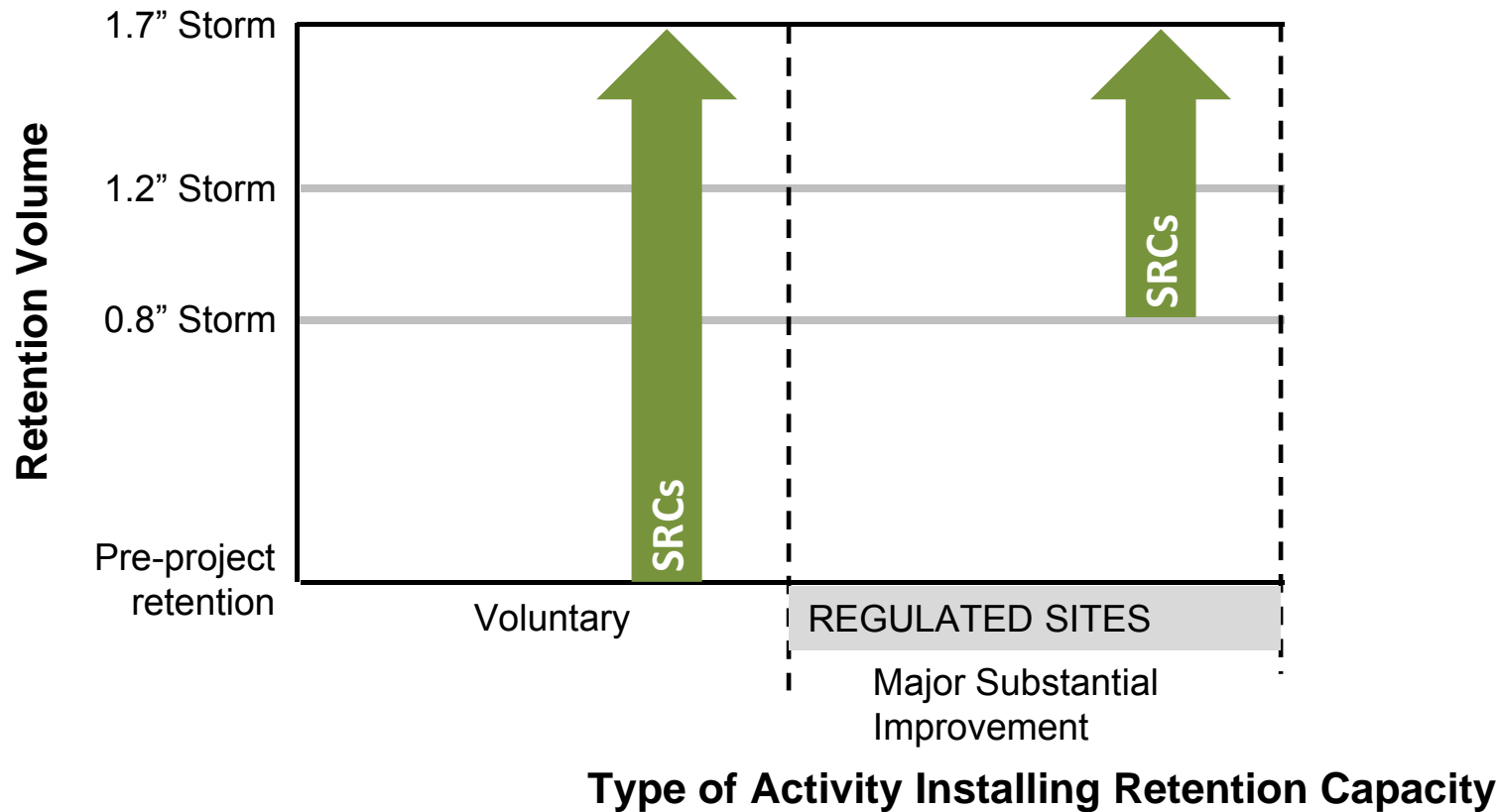
Type of Activity Installing Retention Capacity

Eligibility for SRC Certification

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Retention Volume Eligibility: Stormwater Retention Credits (SRCs)

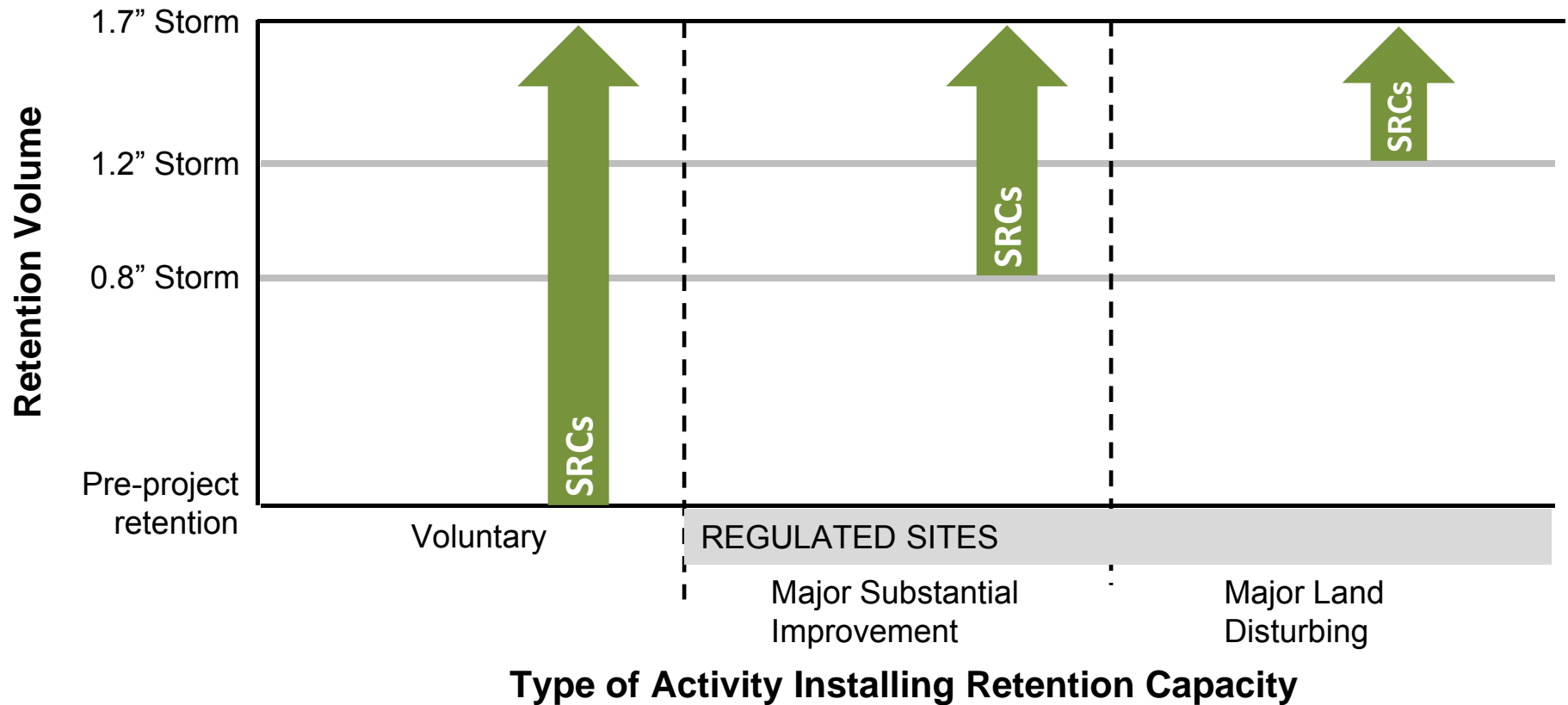


Eligibility for SRC Certification

Eligible GI & land cover changes must:

1) Achieve retention above existing retention or regs.

Retention Volume Eligibility: Stormwater Retention Credits (SRCs)



Eligibility for SRC Certification

Eligible BMPs & land cover changes must:

- 1) Achieve retention above existing retention or regs.
- 2) Be designed and installed in accordance with DDOE-approved SW Management Plan (SWMP).
- 3) Successfully complete final DDOE construction inspection and ongoing inspections by DDOE.
- 4) Have current maintenance contract or document ability/expertise to maintain.

Example SRC Transaction

- Grocery parking lot voluntarily installs 4,000 gal bioretention to generate 3 years of SRCs or 12,000 SRCs.*
- Church parking lot voluntarily installs 2,000 gal bioretention to generate 3 years of SRCs or 6,000 SRCs.
- Regulated site has 3,000 gal yearly offsite obligation & purchases total of 18,000 SRCs to comply for 6 years.
- By end of 6-year period, regulated site purchases additional credits or pays in-lieu fee.

*Opportunity for discount on stormwater impervious fee provides:

- Layered incentive for retrofit and
- Way to split financial benefits – Aggregator & property owner.

RiverSmart Rewards Discount Program

- Two SW Impervious Fees:
 - DC Gov't (DDOE) Stormwater Fee
 - DC Water Impervious Area Charge (IAC)
- Collected by DC Water on water bill.
- Two separate Discount rulemakings for each fee.
 - DDOE - 55% max discount for 1.2" retention from 1 ERU
 - DC Water – 4% max discount for 1.2" retention from 1 ERU

Potential 10-Year Financial Return on Retention BMP - SRC Revenue and Discount on Impervious Fees												
Assuming installation of BMP to retain 1.2" of stormwater from 1 Equivalent Residential Unit												
	Rate	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10-Year Total
Max.Discount - DC Water IAC	4%	\$5	\$6	\$8	\$10	\$11	\$12	\$13	\$14	\$15	\$15	\$107
Maximum Discount - SW Fee	55%	\$18	\$18	\$26	\$26	\$26	\$26	\$33	\$33	\$33	\$33	\$273
Projected Value of SRCs (inflation-adjusted)	\$1.25	\$888	\$917	\$949	\$981	\$1,014	\$1,048	\$1,083	\$1,120	\$1,158	\$1,197	\$10,354
Total		\$910	\$941	\$983	\$1,017	\$1,051	\$1,086	\$1,129	\$1,167	\$1,206	\$1,245	\$10,734

SRC Trading – SW Regs Benefits

Problem of imperviousness provides opportunity for trading.

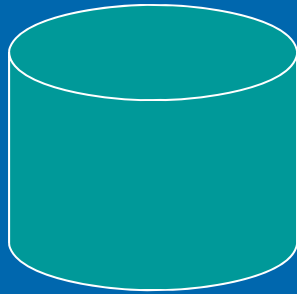


- Trading can maximize triple bottom line of sustainability:
 - Maximize cost savings & flexibility for regulated sites.
 - Increase retention and accelerate restoration of waterbodies.
 - Increase socioeconomic benefits, with more GI (health, aesthetics, environmental justice, green jobs).

Trading's Potential to Increase Retention

➤ Same retention for 1.2" storm:

Strict On-Site



10,000
gallons

Trading

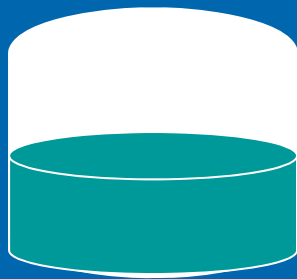


5,000 + 5,000 =
10,000
gallons

Trading's Potential to Increase Retention

- Greater retention for storms smaller than 1.2"
- Example – 0.6" storm:

Strict On-Site



5,000 gallons

Trading

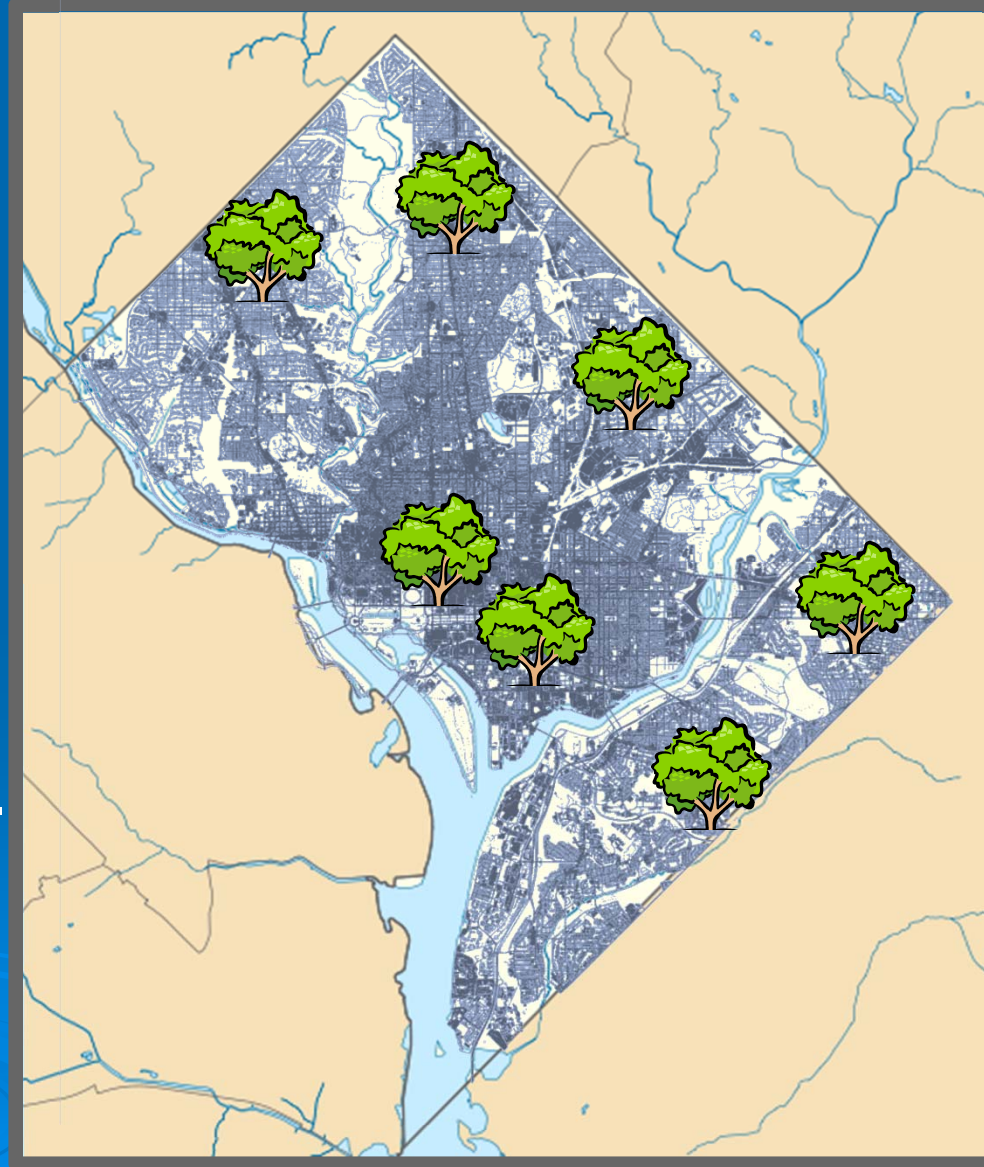


5,000 + 5,000 =
10,000 gallons

- 90% of storms in Washington DC are less than 1.2".
- This scenario yields 57% increase in annual retention.

Benefits to District Waterbodies

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

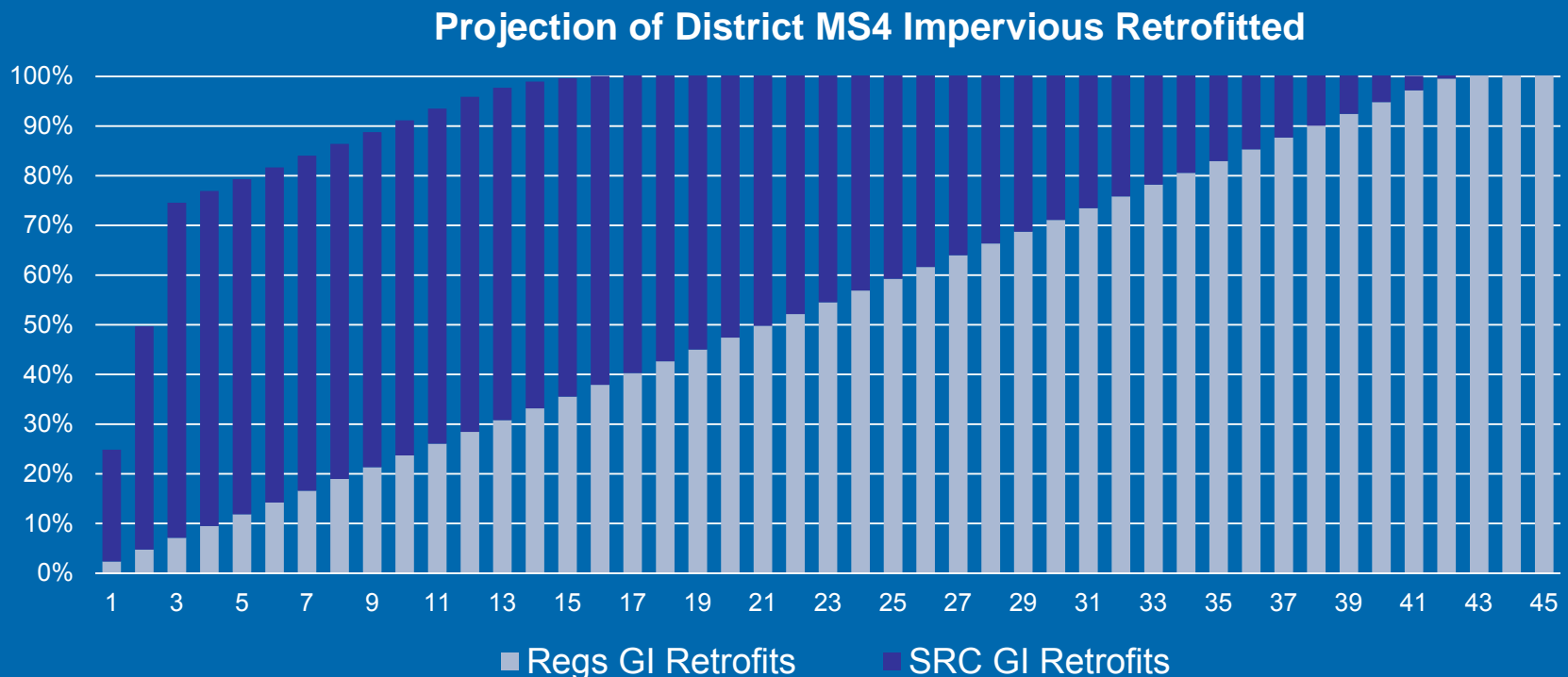


SRC Trading – DDOE Tool for GI

- Pay for performance. Similar to reverse auction.
 - 1 SRC = 1 gallon of retention capacity installed and maintained for 1 year.
- Private market efficiencies of ongoing SRC retrofit market:
 - Ongoing incentive for construction managers and property owners to look for cost-effective opportunities.
 - Incentive to look for least-cost opportunities on public and private property.
 - Incentive for innovations in GI technology.
 - Ongoing DDOE purchases over time allow District to save money from cost-effective innovations.

SRC Trading – Internalizing Externalities

- 43% of District land area is impervious.
- 1% of land triggers SW regs. in average year.
- To expedite, DDOE can make initial investment in GI retrofits to be transitioned over long term to regulated development.



DDOE Facilitation of the SRC Market

- SRC registry, database, and website.
- SRC transaction template contract.
- Informal meetings for trading and networking.
- Information:
 - Map & layer of parking lots and driveways.
 - Analyses of potential financial return, SRC price, supply, demand.
- Portfolio of potential SRC generating projects.
- SRC purchase guarantee to reduce demand uncertainty.
- SRC purchase by DDOE to meet CWA requirements.
- PACE for stormwater.

QUESTIONS?

Brian Van Wye

Brian.VanWye@dc.gov; 202-741-2121

SRC trading - ddoe.dc.gov/src

RiverSmart Rewards discount - ddoe.dc.gov/riversmartrewards

Stormwater management regulations - ddoe.dc.gov/swregs

