SCALING UP GREEN INFRASTRUCTURE IN THE DISTRICT OF **COLUMBIA THROUGH SRC TRADING**

Moving Towards Implementation: Comprehensive Climate Action Solutions from the Building to the City Scale

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Environmental Protection Specialist











PRESENTATION OUTLINE

- Background on Stormwater in the District of Columbia
- Scaling Phase 1 Stormwater Retention Credit (SRC) market enabled regulatory shift
 - Use of SRCs by Regulated Sites
 - SRC eligibility and trading
- Benefits of the SRC program to District Waterbodies
- Scaling Phase 2 SRC purchases by the District sets price floor
- Tracking Program Implementation and Current Status



STORMWATER IN THE DISTRICT OF COLUMBIA

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IMPERVIOUSNESS IN THE DISTRICT

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













STORMWATER INFRASTRUCTURE

- Combined Sewer System (CSS)
 - 1/3 of District
 - 3.2B gallons of sewage and stormwater overflows annually
 - \$2.6B ongoing capital project
 - 2018 Anacostia Tunnel
- Municipal Separate Storm Sewer System (MS4)
 - 2/3 of District
 - Direct discharge without treatment
 - \$7B+ GI Build-out required
 - \$10M annual fund available









GREEN INFRASTRUCTURE (GI) RETROFITS

- Retain runoff on site to mimic natural land cover
- Essential for long-term restoration of waterbodies
- 2013 Stormwater Regulations adopted retention standard
- Help communities prepare for and manage climate change impacts by:
 - · Mitigating flood risk
 - · Building resiliency to drought
 - Reducing the Urban Heat Island Effect
 - · Lowering building energy demands
 - Reducing potable water consumption



SCALING UP GI RETROFITS PHASE 1-REGULATORY SHIFT

THE ROLE OF SRC TRADING IN ENABLING A PARADIGM SHIFT IN THE DISTRICT



REGULATIONS KEY TO MS4 STORMWATER SOLUTION

- Most regulated development in District is redevelopment
- Scale of development makes it biggest driver of retrofits and key part of the solution:
- Gradual transformation of DC's 43% impervious area
- Flexibility in compliance with the regulations through off-site retention was the key factor in the regulatory change

10:1

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

Total area retrofitted with retention via DOEE direct investment annually





STORMWATER RETENTION CREDIT TRADING PROGRAM

- The District's stormwater management regulations require large development projects to install green infrastructure (GI) to retain stormwater runoff
- Flexibility in the regulations allow projects to meet 50% of its requirement off-site, including through the purchase of Stormwater Retention Credits (SRCs)
- SRCs are generated on sites that install GI voluntarily or in excess of a regulatory requirement
- The opportunity to sell SRCs helps to incentivize GI on properties where it is not otherwise required

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ALLOWABLE USE OF OFF-SITE RETENTION

On-site retention $\geq 50\%$ of the retention requirement

• Free to go off site

Impervious surface = $14,000 \text{ ft}^2$

Stormwater retention volume (SWRv) = 10,000 gallons

On-site minimum = 5,000 gallons



ALLOWABLE USE OF OFF-SITE RETENTION

On-site retention $\geq 50\%$ of the retention requirement

• Free to go off site





VO OPTIONS TO ACHIEVE OFFV

1. Stormwater Retention Credits

- Privately tradable
- 1 SRC corresponds to 1 gallon of retention for 1 year
- 1 SRC achieves 1 gallon of Offv for 1 year
- Each SRC has a unique serial number
- Buyer and seller negotiate price (average in 2017 = \$2.02)

2. In-lieu fee (ILF) payment

- Paid to DOEE
- Corresponds to 1 gallon of retention for 1 year
- Achieves 1 gallon of Offv for 1 year
- Adjusted annually for inflation (current price = \$3.61)



STORMWATER RETENTION CREDIT ELIGIBILTY AND TRADING



ELIGIBILITY FOR SRC CERTIFICATION

Eligible GI & Land Cover Changes Must:

- 1) Achieve retention above existing retention or regulations
- >> D 1 Retention Volume Eligibility: Stormwater Retention Credits (SRCs)



PROCESS FOR BUYING AND SELLING SRCS

- 1. Negotiate terms of transfer/contract between buyer and seller
- 2. Submit application for transfer of SRC ownership
- 3. Receive DOEE confirmation of transfer of SRC ownership
- One of purposes of this process is to collect and share price information, without violating confidentiality



EXAMPLE SRC TRANSACTION

- Grocery parking lot voluntarily retrofits parking lot with a 4,000 gallon bioretention to generate 4,000 SRCs.
- Church parking lot voluntarily retrofits parking lot with a 2,000 gallon curbside planters to generate 2,000 SRCs.
- Regulated site has retention requirement, installs on-site retention, opts for Offv, & purchases 6,000 SRCs to achieve Offv for 2 years.



INFORMATION AVAILABLE

	SRCs for Sale									
* * * DEPARTMENT OF ENERGY & ENVIRONMENT STORMWATER DATABASE										
Nevigation + Pro	igram Directory + Support + Ins	dructions +								
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• Expected Offv

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BENEFITS OF THE SRC PROGRAM TO DISTRICT WATERBODIES



TRADING'S POTENTIAL TO INCREASE RETENTION

Same retention for 1.2" storm:

STRICT ON-SITE



10,000 gallons

SRC 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:



- 90% of storms in the District are less than 1.2"
- Scenario yields 57% increase in annual retention

BENEFITS TO DISTRICT WATERBODIES

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









SRC PRICE LOCK PROGRAM

- Through the SRC Price Lock Program, SRC generating projects in the MS4 have the option to sell SRCs at fixed prices to DOEE
- This provides confidence about the revenue from selling SRCs and creates demand for new, voluntary green infrastructure (GI) projects in areas that drain to waterbodies without treatment.

SRC PRICE LOCK PROGRAM





SRC PRICE LOCK PROGRAM

- \$11.5 million Investment ensures the shift of GI to vulnerable tributaries & improves socioeconomic outcomes
- First two Price Lock
 Program applicants located in the non-tidal MS4



ADDITIONAL PROGRAMMATIC RESOURCES

- SRC Aggregator Startup Grant
 - Desktop assessment of prospective sites
 - Outreach to property owners
 - Field assessment/analysis of prospective sites
 - Preliminary design of green infrastructure
- SRC Site Evaluation
 - Sites must have at least 0.5 acres available
 - Evaluations are provided directly to property owners
- Through these programs, DOEE is helping interested parties participate in the Price Lock Program and further ensuring the shift of GI to environmentally vulnerable areas



SRC FINANCIAL RETURN CALCULATOR

- SRC Generating Project
 - Price Lock Participant
 - Standard Bioretention Cell
 - 30,000 ft² Project Area

- 20,907 Annual SRC Eligibility
- \$129,810.85 in Capital Costs
- 30% Return on Investment

Detailed Estimation SPC Hice Lock Participation*																										
		Total Over Investment Period		Year I		Year 2		Year 3		Tear 4		Year 5		Year à		Year 7		Year 8		Year 9	4	ear 10	2	ear 11	Y	ear 12
Out-of-Pocket Costs	\$		\$	(1																					
Loan Repayment	\$	(153,796)	\$	(26.433)	\$	(25.633)	\$	[25.433]	\$	(25.633)	\$	(25.633)	\$	(25.633)												
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IAC Discount*	5	5.283	\$	290	\$	327	\$	345	\$	403	\$	431	\$	453	\$	474	\$	493	5	\$11	5	511	5	\$11	\$	511
SW Fee Discount*	\$	5.075	\$	423	\$	423	\$	423	\$	423	\$	420	5	420	\$	423	5	420	5	423	5	423	5	423	\$	423
Total Revenue	\$	305,147);	41,482	\$	41,517	\$	41,554	\$	41,514	\$	41,423	\$	41,648	\$	1,240	\$	1,271	\$	9,297	\$	9,297	5	9,297	\$	9,297
Net Cash Flow Return on investment	3	71,284,70	5	9,849	5	9,772	5	9.692	5	9.677	5	9.519	5	9,417	5	2,539	5	2,429	5	2,317	\$	2.163	\$	2.048	\$	1,909
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BENEFITS FOR DISTRICT OF SRC PURCHASE

- Risk of maintenance failure not born by DOEE.
- Risk of selecting site that will trigger regs not born by DOEE.
- Incentive to find least-cost opportunities on public & private land.
- Savings for ratepayers compared to DOEE building GI itself.
- SRCs as regulatory currency facilitates scaling up and down.





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TRACKING PROGRAM IMPLEMENTATION AND CURRENT STATUS



- DOEE tracks regulated and voluntary projects through the Stormwater Database (<u>http://doee.dc.gov/swdb</u>)
- Detailed project information allows DOEE to adaptively manage its programs as necessary
- The Stormwater Database contains online applications, the SRC and Offv Registry, and performance dashboards





PROGRAM TRACKING



O up to \$5,750,000 - \$5,750,000 up to \$9,200,000 \$ \$9,200,000 up to \$11,500,000



SRC MARKET DATA (2/2/2018)

SRC trades

- 26 trades overall
- 157,360 SRCs purchased
- \$314,589 in sales
- 15 trades YTD at average \$2.02/SRC

Demand

- Approximately 10-12% of regulated sites (54 projects) have opted to meet some of their retention obligation off-site
- 345,002 gallons of Offv
- 26 projects have completed construction (or within 4 weeks)
 - 19 are purchasing SRCs (88,509 SRCs/year)
 - 5 are generating their own SRCs (61,201 SRCs/year)
 - 2 are paying ILF (2002 gallons/year)
 - Additional 193,212 gallons/year permitted or under construction



THANK YOU!

Matt Johnson Matt.Johnson2@dc.gov

(202) 741-0861

SRC Program Information **doee.dc.gov/src**

MS4 Annual Report doee.dc.gov/node/139492

Stormwater Management Regulations and Guidance doee.dc.gov/swregs





GREEN INFRASTRUCTURE IN THE DISTRICT OF COLUMBIA



