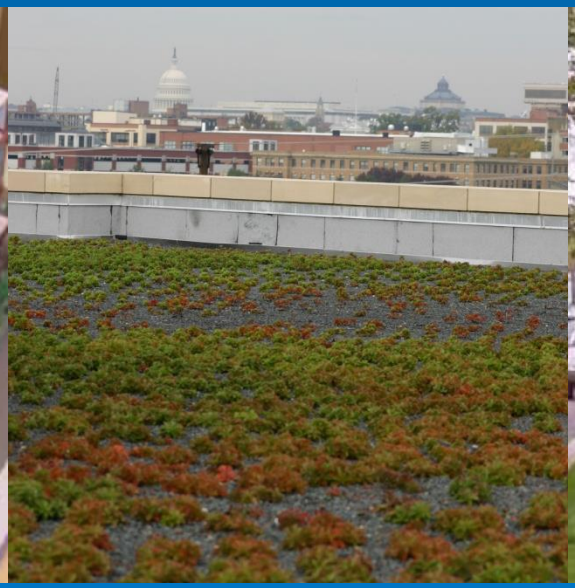
Stormwater Management for Private Sites


Hamid Karimi

District Department of the Environment

DISTRICT DEPARTMENT OF THE ENVIRONMENT green forward

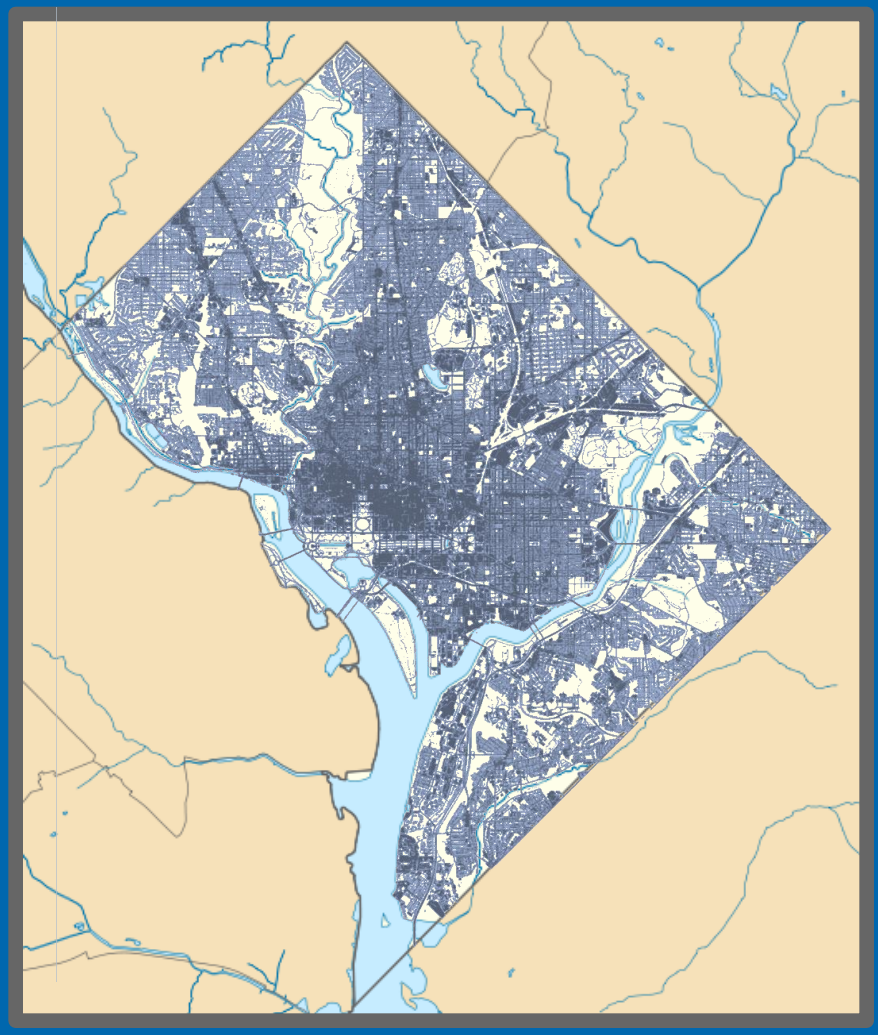
Presentation Outline

- Background on Stormwater in the District
- Voluntary
- Incentive
- Regulatory
- Anticipated Outcome

Urbanization → Stormwater

Imperviousness in the District

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



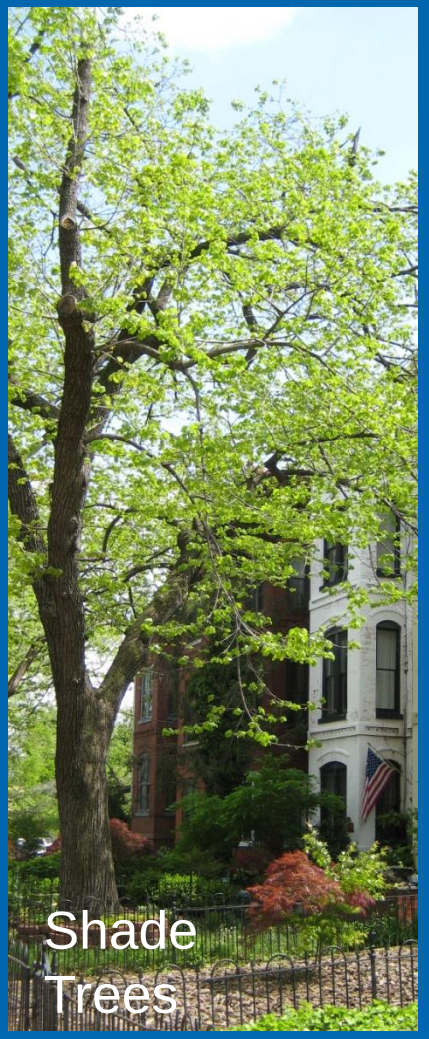
Impact on Waterbodies

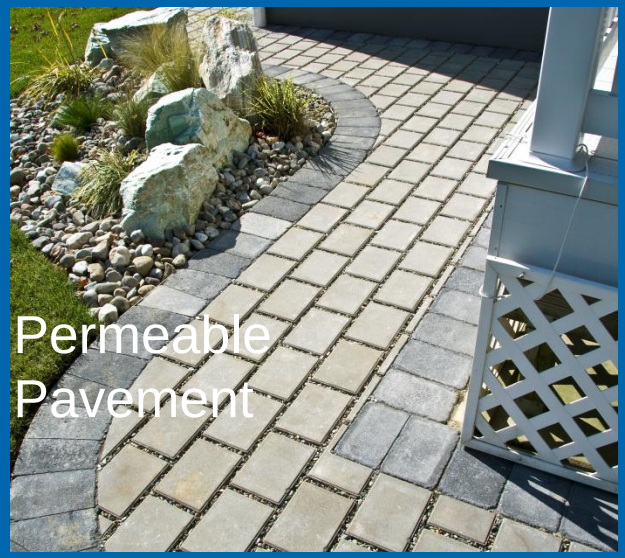
Stormwater causes erosion and washes sediment, trash, pet waste, oil, and other pollutants into District sewers and waterbodies.

Voluntary/Incentive Program

RiverSmart Homes

- Adjusted to urban setting
- Convenient
- Practical





Incentive/Impervious Rate Utility

Regulatory Update Necessary for Restoration

- Most regulated development in District is redevelopment.
- Regulated development is a critical part of the solution.
- Scale of development makes it the biggest driver of retrofits.

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.

Necessary to Meet Federal Mandate

Major land-disturbing activity

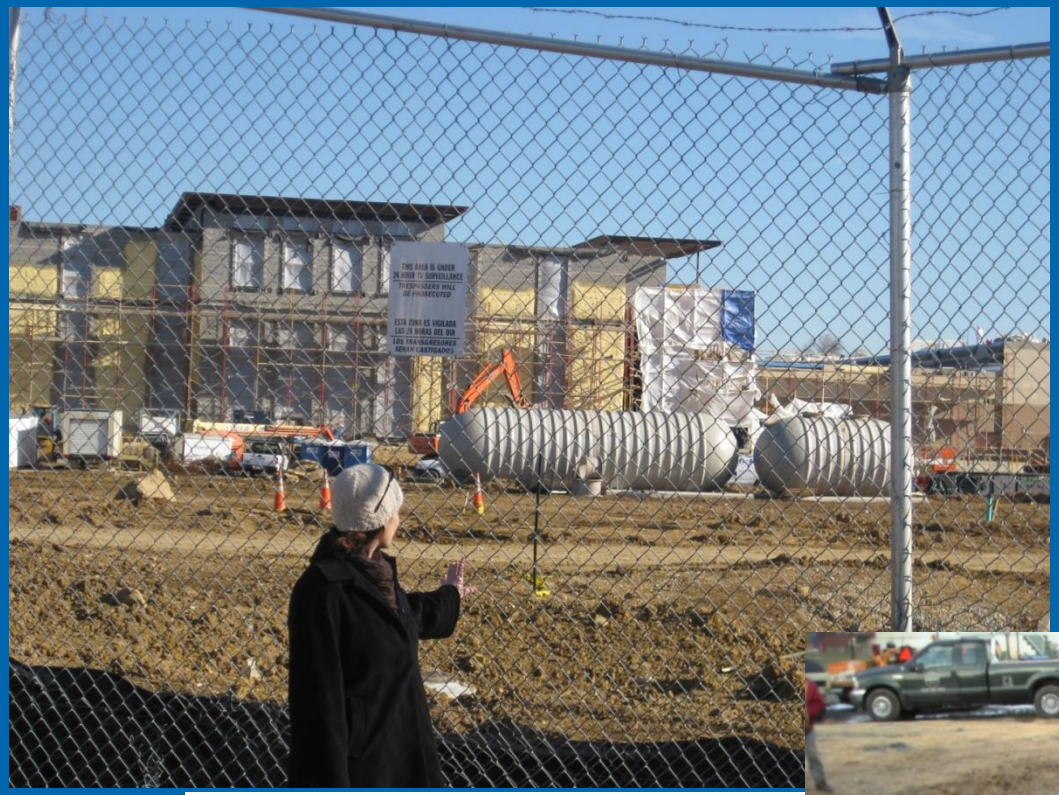
- Retain the first 1.2” of rainfall on-site or through a combination of on-site and off-site retention.

Major substantial improvement activity

- Retain the first 0.8” of rainfall on-site or through a combination of on-site and off-site retention.

Stormwater
Tree and LID Boxes

Rainwater Harvesting for Non-potable Uses

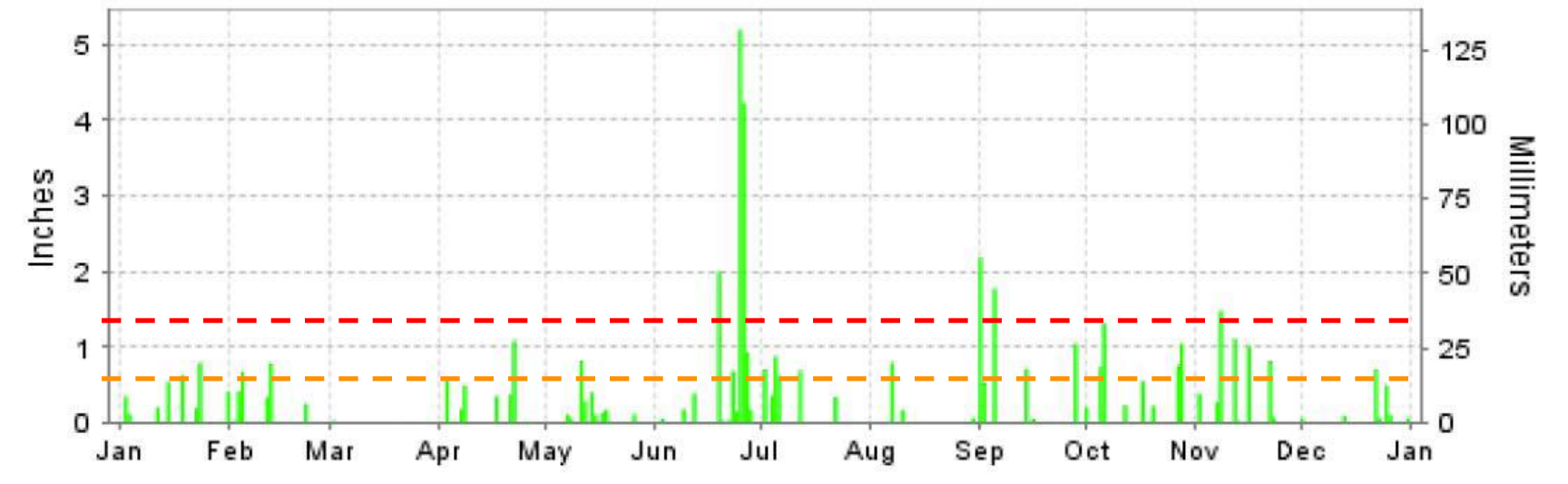


Practical Approach: Off-Site Flexibility

- Off-site retention may be used after achieving half of the required retention on-site, without proving that more on-site retention is infeasible.

- Two options for achieving off-site retention:
  - In-lieu fee payment to DDOE = $3.50/gallon/year.
  - Use of privately tradable Stormwater Retention Credits (SRCs).

2006 Precipitation Washington DC



MS4 Requirement 90th Percentile Event = 1.2”

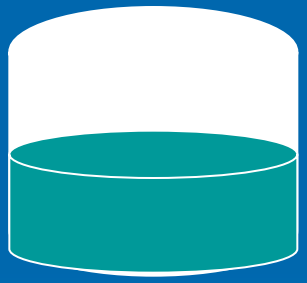
Half of the Requirement = 0.6”

Precipitation Data, NOAA, Reagan National Airport, Arlington VA

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.

SRC as a Management Tool

- Problem of imperviousness is opportunity for trading to:

- Accelerate retrofits of existing impervious area.
- Encourage public-private partnership.
- Take advantage of private market efficiencies to achieve other water quality requirements and goals.
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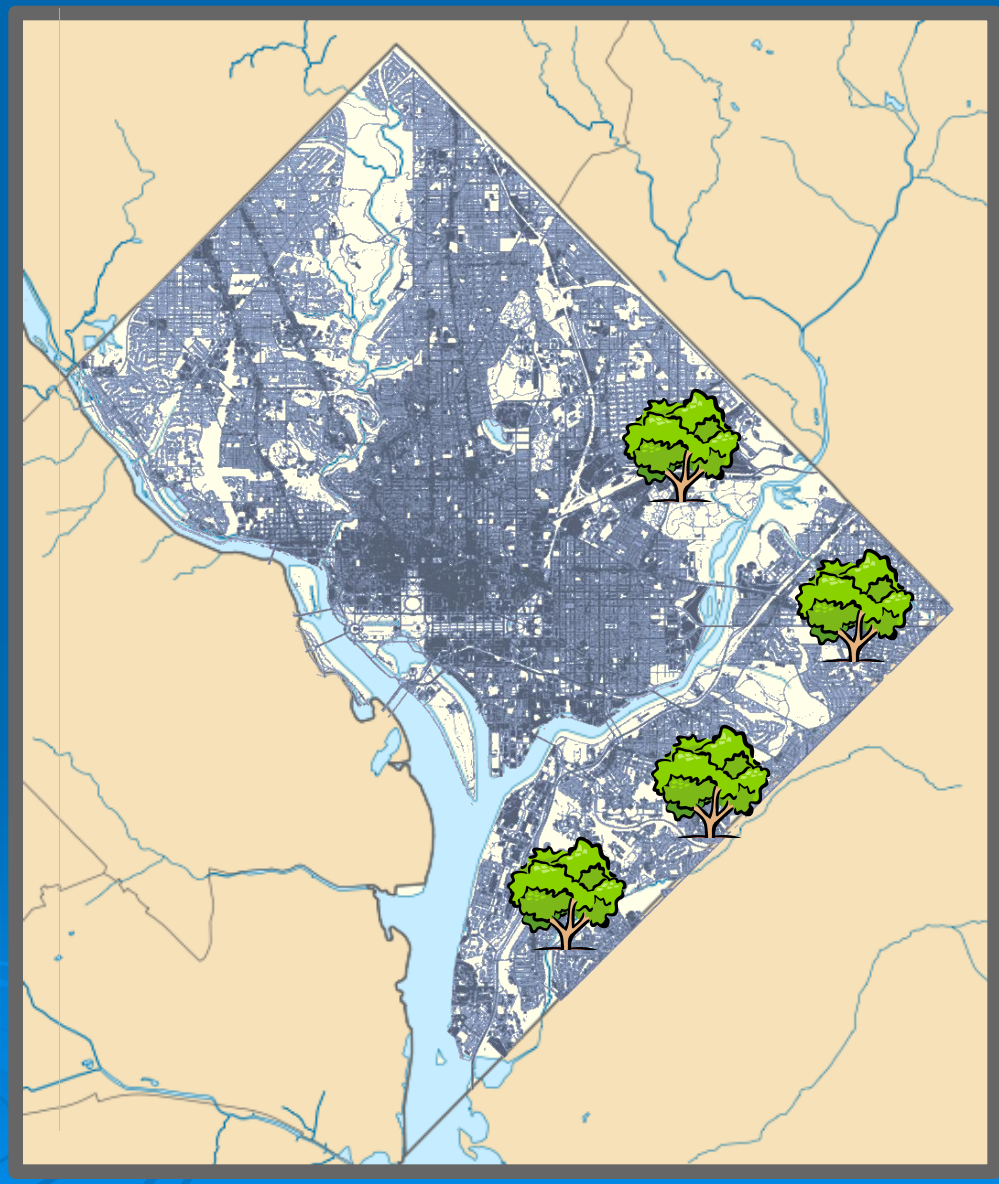
Benefits to District Waterbodies

- Increased event retention.
- Increased capture of first-flush volume.
- Shift retention BMPs to most vulnerable tributaries.
- Improve socioeconomic outcomes.



QUESTIONS?

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To download the District's
Revised Rule on Stormwater Management,
Revised Stormwater Management Guidebook,
and related resources, visit:

ddoe.dc.gov/proposedstormwaterrule