

Trading Stormwater Runoff to Restore the District of Columbia's Rivers

Designing the Stormwater
Retention Credit (SRC)
Program to Maximize Local
Benefits



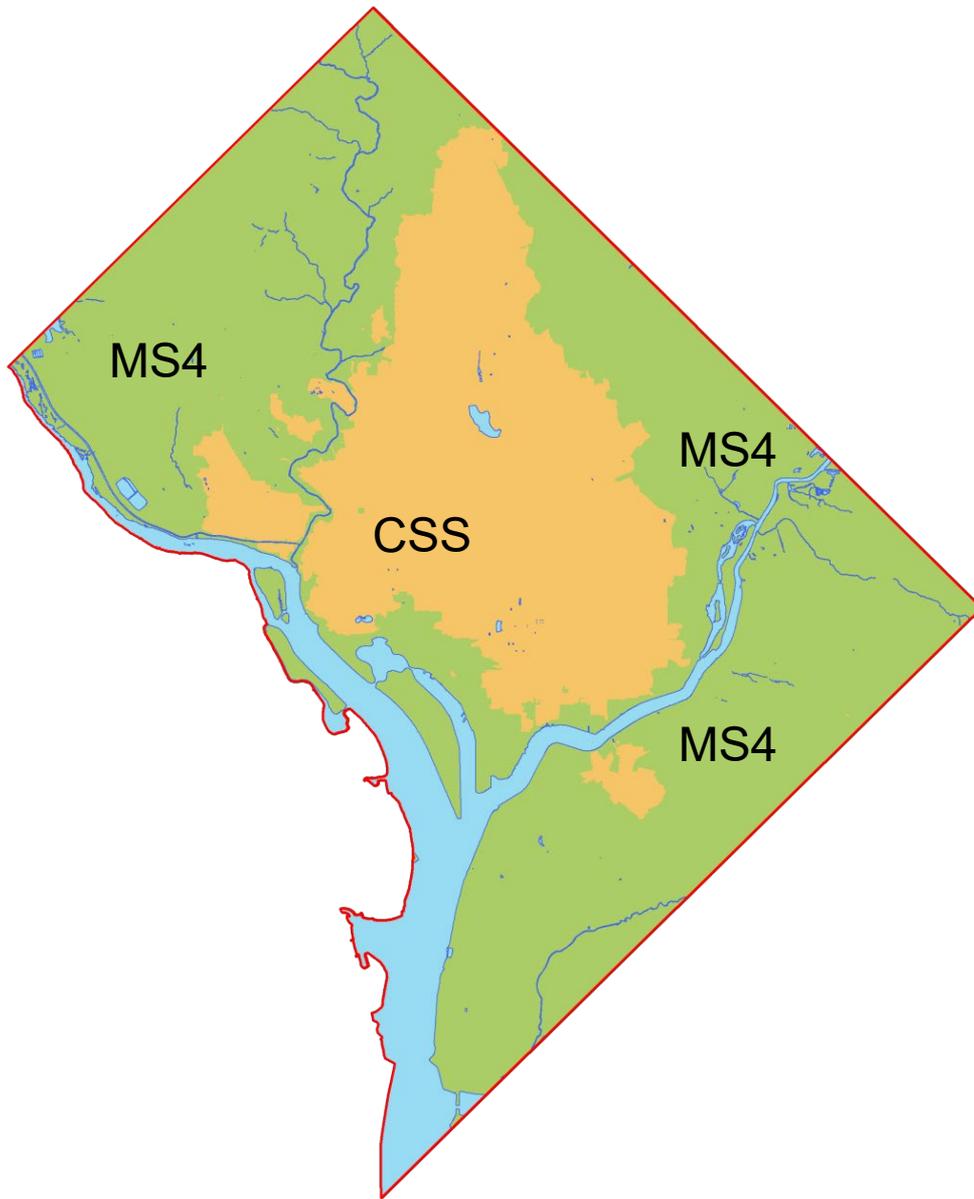
Matthew Espie





DC CONTEXT FOR STORMWATER TRADING





IMPERVIOUS SURFACES AND STORMWATER IN WASHINGTON, DC

- 43% Impervious surface
- 1/3 drains to Combined Sewer System (CSS)
 - \$2.6B capital project to reduce Combined Sewer Overflows (CSOs)
- 2/3 drains to Municipal Separate Storm Sewer System (MS4)
 - \$7B+ green infrastructure build-out
 - \$10M/year budget
 - Retrofit will occur over decades

REGULATIONS KEY TO MS4 SOLUTION



- Green infrastructure (GI) reduces runoff
- DC development is redevelopment

2013 Stormwater Rule:

- Requires GI to manage a design storm (1.2-inch for most projects)
- GI installed during development projects reduces runoff from pre-project baseline
- 10x more area retrofitted through regulations than through DOEE direct spending

Trading program was enabling factor for regulations:

- 50% Off-site flexibility
- Trading has potential to maximize benefits for District waterbodies and communities
- Trading has potential to accelerate restoration

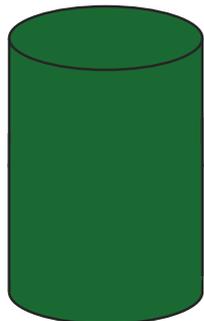
Required Volume

–

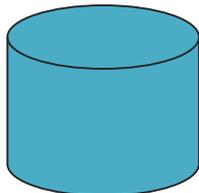
On-Site Retention

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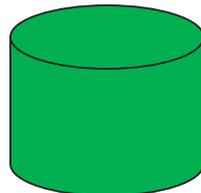
Off-Site Retention
(Stormwater Retention Credits)



10,000 gallons



5,000 gallons



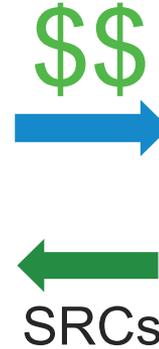
5,000 gallons

GENERATING AND SELLING SRCs

FUNDING SOURCES



SRC AGGREGATORS



GI RETROFIT PROPERTIES



SRC PRICE LOCK PROGRAM



REGULATED DEVELOPERS

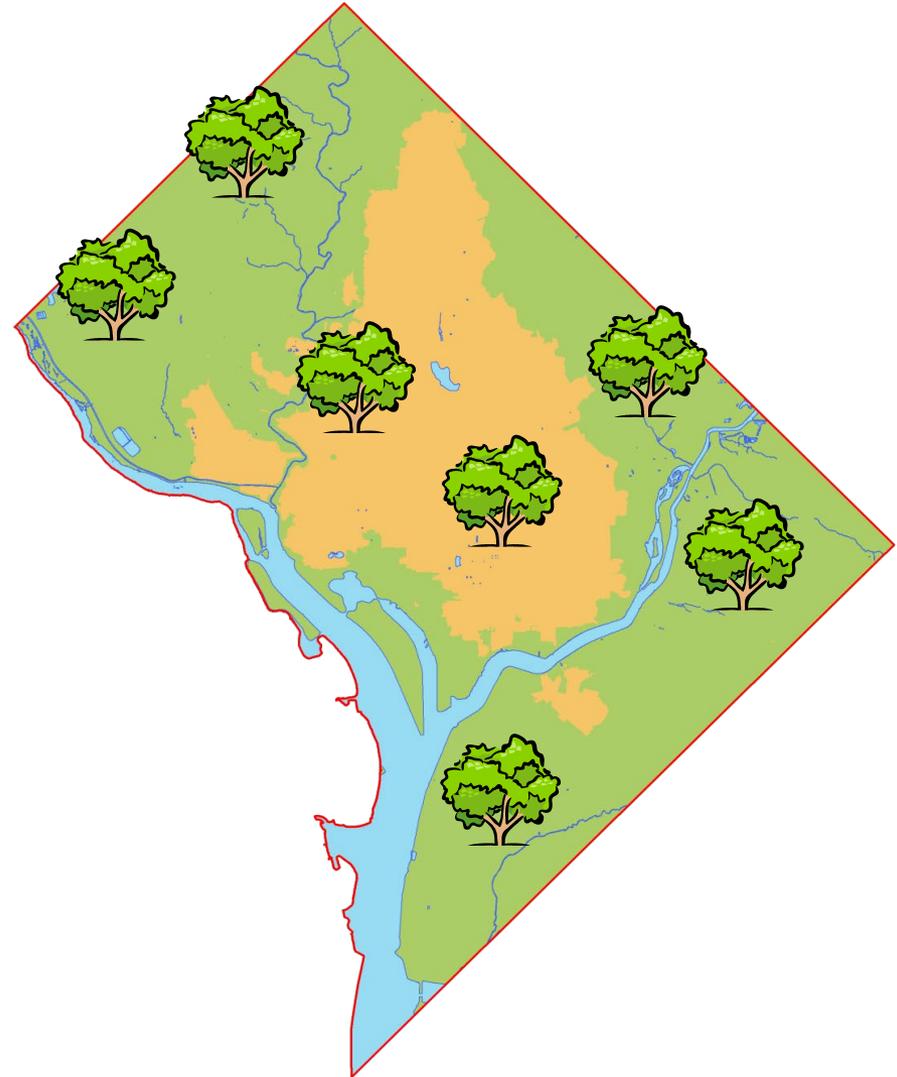


KEY ISSUES IN DESIGNING THE SRC PROGRAM

TRADING ACROSS WATERSHEDS

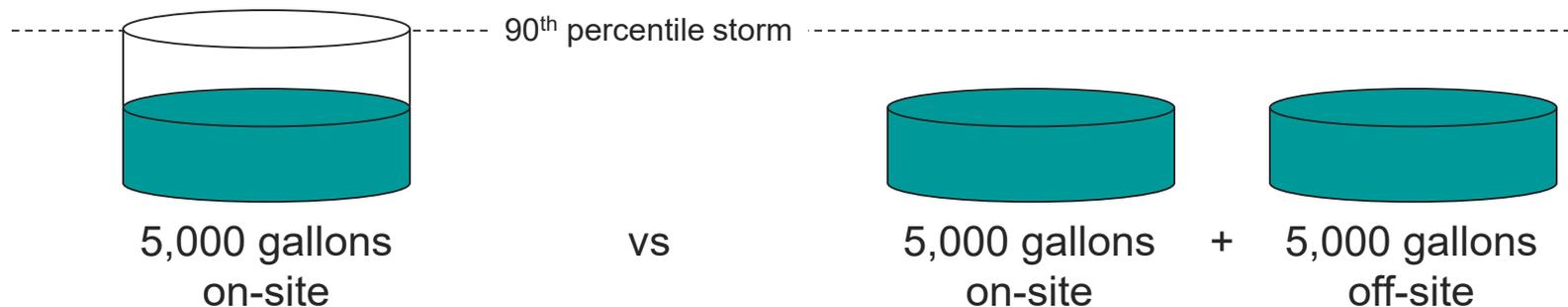
Potential for GI projects in watersheds needing GI most, which can be:

- More cost-effective way to encourage GI in high-priority areas
- Better for waterbodies
- Cheaper for developers
- Better for environmental justice outcomes
- More likely to result in functioning market



ON-SITE FEASIBILITY TEST?

- Administration of feasibility review
 - Lengthy process
 - Feasibility vs budget
- 50% on-site is improvement over baseline
- Desire to shift investment to MS4 where it is needed most
 - \$7B needed in MS4
 - \$10M available (an little ability to increase revenue)
- Potential to reduce empty capacity in smaller storms:



PERMANENT VS ANNUAL CREDIT LIFE

Permanent Credit Life:

- Can be barrier to participation due to up-front cost or requirement to keep project in place long term
- Challenges around long term maintenance responsibility

Annual Credit Life:

- Allows more flexibility (and projects have option to purchase credits for long-term period if desired)
- More feasible to require maintenance contracts for credit lifespan

DOEE Determination:

- Annual credit life, certified 3 years at a time

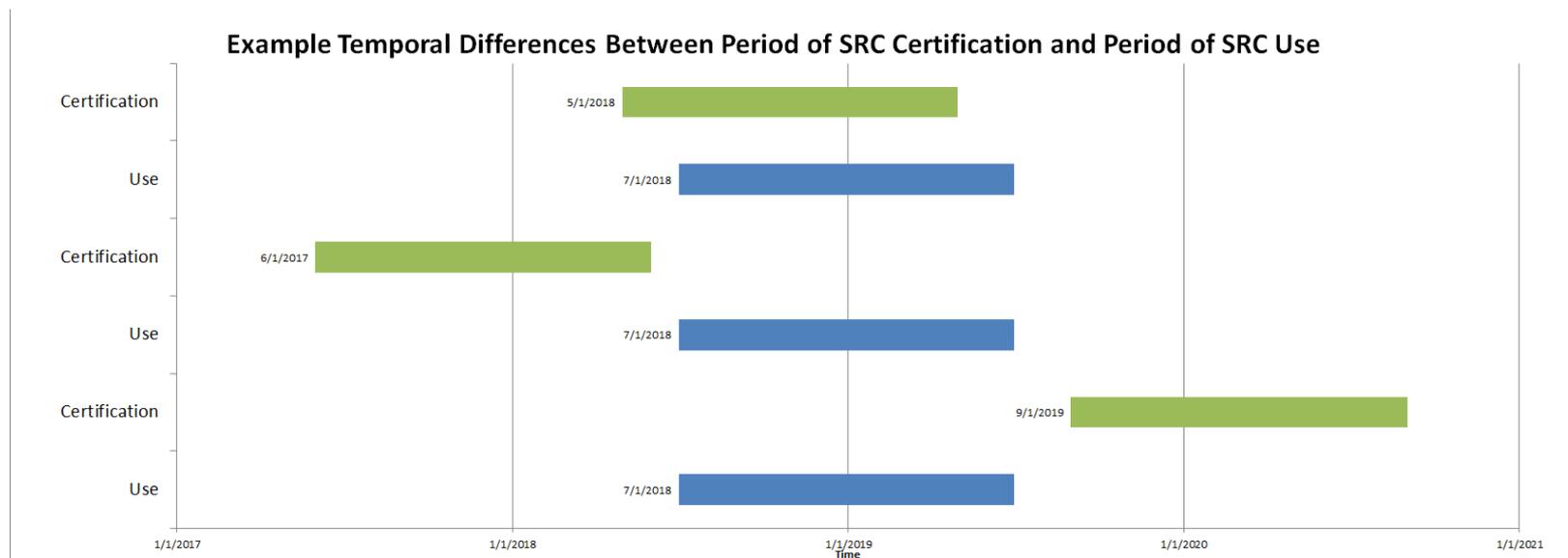
CREDIT BANKING

Using “present” retention for “future” requirement:

- Can make GI funds available more quickly

Using “future” retention for “present” requirement:

- Limited by 3-year cycle
- Limited by 50% on-site minimum



RESULTS: SRC SALES TO DEVELOPERS

- 43 trades overall
- 270,685 SRCs purchased
- \$550,954.40 in sales
- 18 trades YTD at average \$2.08/SRC

- SRC Sales (43) [Print](#) [Export](#)

Prev 1 Next

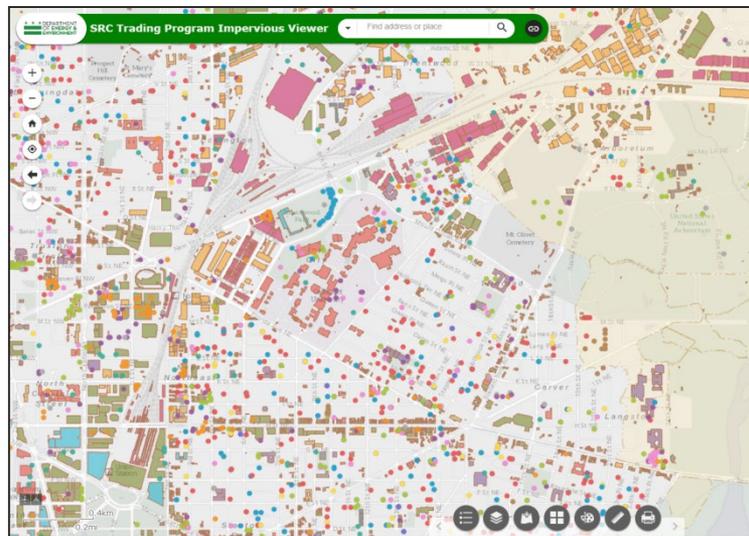
| Transfer Date ▲ | SRC Watershed | SRC Sewershed | SRC Sale Price | Number of SRCs Sold | Value of SRCs Sold | Notes about SRC Trade |
|-----------------|---------------|---------------|----------------|---------------------|--------------------|-----------------------|
| 11/14/2018 | Anacostia | MS4 | \$1.91 | 782 | \$1,493.62 | |
| 11/14/2018 | Anacostia | CSS | \$2.00 | 3,468 | \$6,936.00 | |
| 11/13/2018 | Anacostia | MS4 | \$1.91 | 4,950 | \$9,454.50 | |
| 10/15/2018 | Anacostia | MS4 | \$2.00 | 11,013 | \$22,026.00 | |
| 8/23/2018 | Potomac | MS4 | \$2.00 | 36 | \$72.00 | |
| 8/22/2018 | Potomac | MS4 | \$2.00 | 548 | \$1,096.00 | |
| 8/8/2018 | Potomac | CSS | \$1.99 | 18,025 | \$35,869.75 | |
| 6/19/2018 | Potomac | CSS | \$1.99 | 1,052 | \$2,093.48 | |
| 6/12/2018 | Anacostia | CSS | \$2.00 | 5,905 | \$11,810.00 | |
| 6/8/2018 | Rock Creek | CSS | \$1.74 | 9,296 | \$16,151.80 | |
| 5/24/2018 | Anacostia | CSS | \$2.00 | 12,806 | \$25,612.00 | |
| 5/22/2018 | Potomac | MS4 | \$2.00 | 2,142 | \$4,284.00 | |
| 5/15/2018 | Anacostia | CSS | \$2.00 | 12,671 | \$25,342.00 | |
| 3/29/2018 | Anacostia | MS4 | \$2.50 | 27,092 | \$67,730.00 | |
| 3/29/2018 | Rock Creek | CSS | \$1.70 | 1,242 | \$2,111.40 | |
| 3/6/2018 | Rock Creek | CSS | \$1.75 | 1,859 | \$3,253.25 | |
| 2/26/2018 | Anacostia | CSS | \$2.35 | 438 | \$1,029.30 | |
| 1/16/2018 | Potomac | MS4 | \$1.90 | 1,825 | \$3,467.50 | |



DOEE FACILITATION OF SRC PROGRAM

ROLE OF THE GOVERNMENT/JURISDICTION

- Setting rules and ensuring level playing field
- Facilitating transactions vs being buyer/seller
- Find ways to reduce transaction costs (e.g. contract, GIS viewer, financial return calculator)



Financial Summary

The values below were calculated using User inputs and default or assumed values.
DOEE does not guarantee financial return, SRC eligibility, or other results.

| | Annual | Investment Period 12 Years | BMP Life Cycle Period 30 Years |
|---------------------------|--------|-------------------------------|-----------------------------------|
| Potential SRC Eligibility | 15,100 | 181,200 | 453,000 |
| Total Revenue | | \$219,383.81 | \$360,651.28 |
| Net Cash Flow | | \$44,369.35 | \$79,009.83 |
| Return on Investment | | 25% | 28% |

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ROLE OF THE GOVERNMENT/JURISDICTION

- Setting rules and ensuring level playing field
- Facilitating transactions vs being buyer/seller
- Find ways to reduce transaction costs (e.g. contract, GIS viewer, financial return calculator)
- Maintain public registry that has info about buyer/seller

- SRCs for Sale (10) Print Export

Prev 1 Next

Number of SRCs for sale is greater than or equal to:

Asking price is less than or equal to:

Watershed contains:

Sewershed contains:

SRC Project Type contains:

| SRC Information | Number of SRCs for sale | Asking price | Additional information provided by SRC seller | Additional Environmental and Comm |
|---|-------------------------|--------------|---|---|
|  <p>Seller Lee Cain lcain@livingclassroomsdc.org (301) 768-0952</p> | 3,410 | \$1.91 | <p>Description of Project(s): This meadow was created at the end of 2016 when a section of asphalt was removed and replaced with bloom and seeded with native meadow species.</p> <p>More information about these SRCs</p> | <ul style="list-style-type: none">• Located in a priority watershed• Generated by a voluntary GI project• Generated by a vegetated GI project• More information about these SRCs |
| <p>Seller Ronda DeSplinter rdesplinter@the-westchesterco.org (202) 338-7700</p> | 1,720 | \$2.00 | | <ul style="list-style-type: none">• Located in a priority watershed• Generated by a voluntary GI project• Generated by a vegetated GI project• More information about these SRCs |
| <p>Seller</p> | | | | <ul style="list-style-type: none">• Located in a priority watershed |

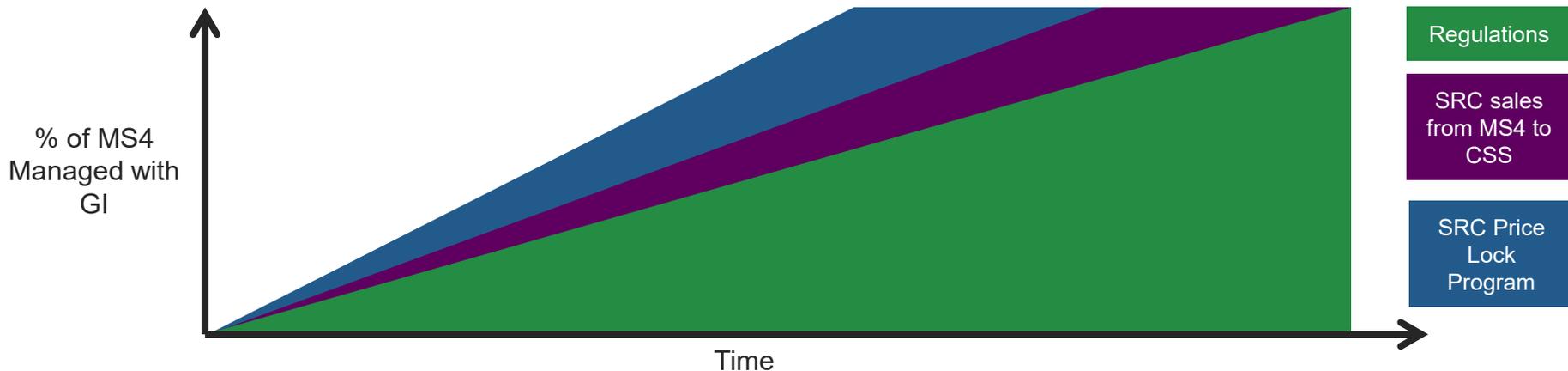
ROLE OF THE GOVERNMENT/JURISDICTION

- Setting rules and ensuring level playing field
- Facilitating transactions vs being buyer/seller
- Find ways to reduce transaction costs (e.g. contract, GIS viewer, financial return calculator)
- Maintain public registry that has info about buyer/seller
- Tracking, reporting (e.g. through Stormwater Database)
- Use policy tools to optimize outcomes for waterbodies and market participants (e.g. government purchases through the SRC Price Lock Program)

SRC PRICE LOCK PROGRAM ACCELERATES RESTORATION PACE

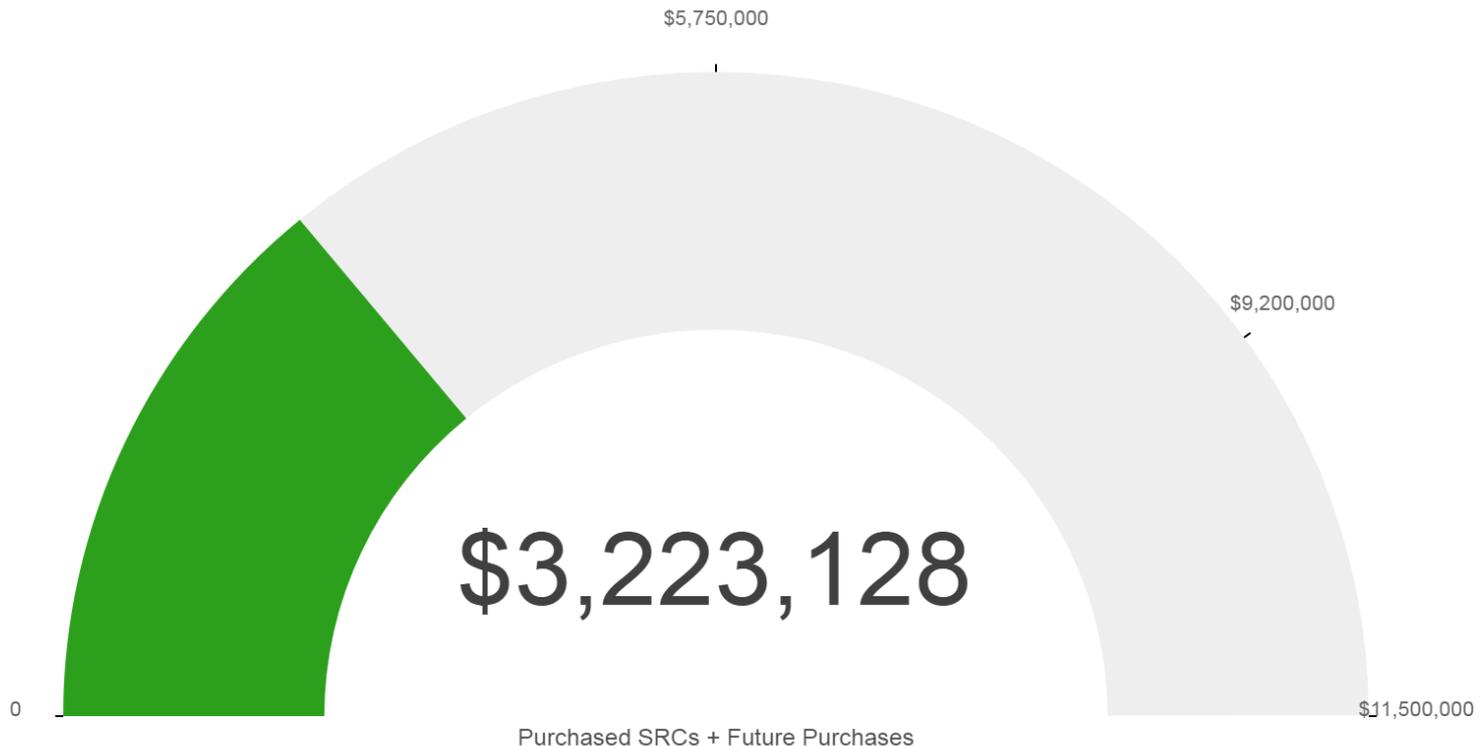
- Reduces burden of finding cost-effective GI opportunities
- Annualized credit on 3-year certification cycle reduces risk of funding GI:
 - that is not maintained
 - on a project that will trigger regulations soon
- SRC Price Lock Program helps ensure supply of MS4 SRCs
- SRC Price Lock Program can increase the pace of GI implementation, but DOEE can exit the market as a buyer as regulated demand grows.

Potential MS4 GI Retrofit Pace



RESULTS: SRC PRICE LOCK PROGRAM

- 3 projects completed; managing combined 7.5 acres
- 2 projects in permitting/construction to manage additional 12.4 acres
- 8 SRC Aggregators funded by DOEE grants, conducting initial technical and outreach work





**ADDITIONAL DEMAND FOR SRCs
COULD FURTHER ACCELERATE
RESTORATION**

VOLUNTARY SRC DEMAND?

FUNDING SOURCES



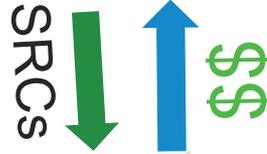
SRC AGGREGATORS



GI RETROFIT PROPERTIES



DEPARTMENT OF ENERGY & ENVIRONMENT



REGULATED DEVELOPERS



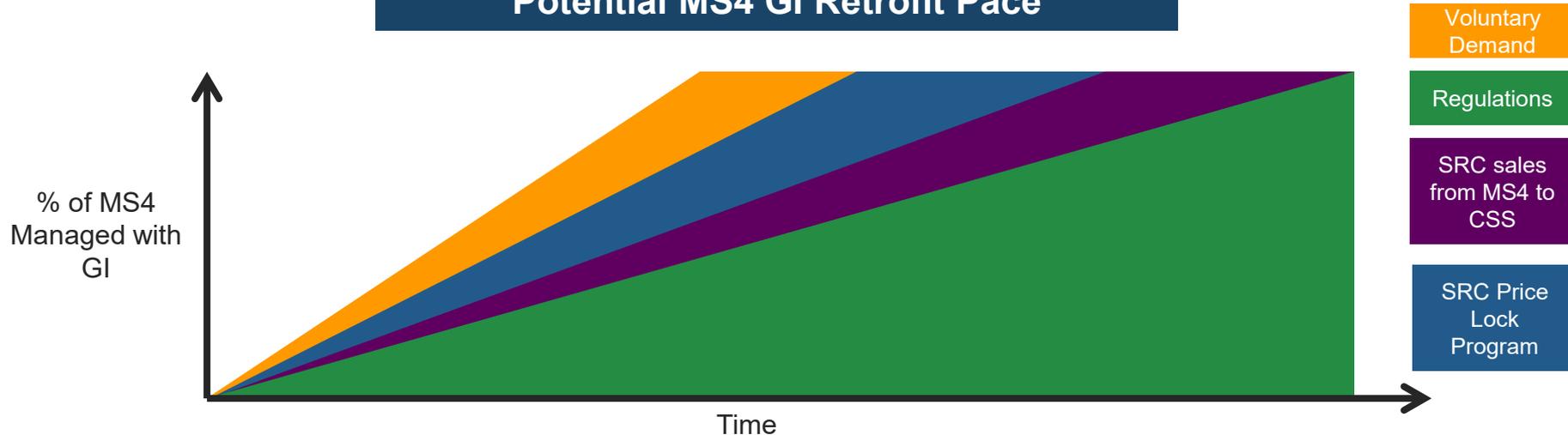
BUSINESSES/EVENTS

SRC PRICE LOCK PROGRAM

VOLUNTARY DEMAND COULD ACCELERATE RESTORATION PACE

- Reduces burden of finding cost-effective GI opportunities
- Annualized credit on 3-year certification cycle reduces risk of funding GI:
 - that is not maintained
 - on a project that will trigger regulations soon
- SRC Price Lock Program helps ensure supply of MS4 SRCs
- SRC Price Lock Program can increase the pace of GI implementation, but DOEE can exit the market as a buyer as regulated demand grows.
- Voluntary demand can add another source of revenue for SRC projects.

Potential MS4 GI Retrofit Pace



MORE INFORMATION



DEPARTMENT
OF **ENERGY &**
ENVIRONMENT

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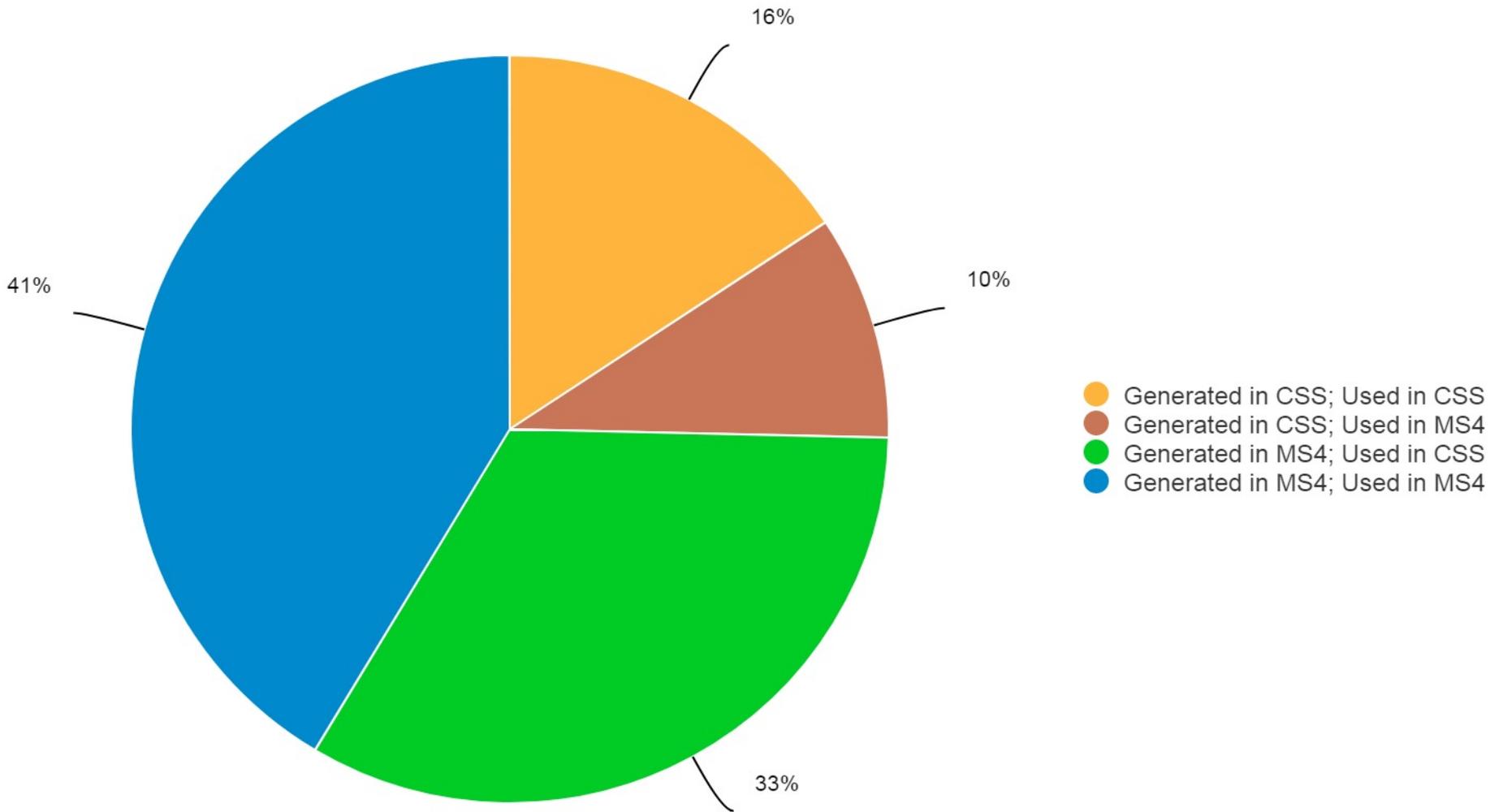
(202) 715-7644

SRC Program Website and Registry

doee.dc.gov/src

RESULTS: TRADING ACROSS SEWERSHEDS

Locations where SRCs are Generated and Used



PERMANENT VS ANNUAL CREDIT LIFE

| Topic Area | Permanent Credit Life | Annual Credit Life | DOEE determination |
|-------------------------------------|---|---|--|
| Commitment to keep project in place | May be a barrier to entry because sites don't want a permanent obligation | Sites have the ability to remove project after a period of time | Annual in a 3-year cycle |
| Compliance period | Life of regulated sites is variable | Uncertainty about cost of future years of compliance | Annual compliance requirement with option to comply for many years up front |
| Supplier revenue | All revenue up front | Revenue received over time | SRC Price Lock Program helps to provide revenue stream over time |
| Maintenance contract | Permanent maintenance contract is infeasible | Short-term maintenance contracts are feasible | Require maintenance contract for certification period |
| Party responsible for maintenance | Difficult to enforce maintenance responsibility on either party several years after compliance initially achieved | Short-term maintenance requirements can be enforced and maintenance failure is unlikely with maintenance contract | Credit-generating site is responsible for maintenance for certification period |

RESULTS: CREDIT BANKING

- Most credit use has been contemporaneous or within 1 year of certification
- Most compliance has been achieved in 1-year increments
- If projects comply for longer time periods, it will be more likely that the period of certification occurs prior to the period of use

