DATA-DRIVEN STRATEGIC PLANNING FOR GREEN INFRASTRUCTURE IN WASHINGTON, DC

Tracking and Evaluating Program Implementation with DC’s Stormwater Database

Matthew Espie
DC CONTEXT FOR GREEN INFRASTRUCTURE PROGRAMS
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
Green Infrastructure (GI):
- Runoff reduction
- Installed through combination of regulatory and voluntary programs

2013 stormwater rule and credit trading program:
- Requires GI for development activity (reduces runoff compared with pre-project baseline)
- Trading program was enabling factor and maximizes benefits

Voluntary incentive programs:
- Grants, rebates, education, and other voluntary programs funded by DOEE
GREEN INFRASTRUCTURE DATA REQUIREMENTS

- Unique ID, including GI type and location
- Area managed
- Size, including calculation of runoff-reduction
- Downstream GI (if applicable)
- Installation date and maintenance status
STORMWATER CREDIT DATA REQUIREMENTS

- Date and location of certification and use
- Ownership and sale information

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**SERIAL NUMBERS**

- Certification Date: 03-07-2015
- Type: SRC
- SWMP number: 3365
- BMP ID number: 3365-21
- Watershed where SRCs are generated: Potomac
- First gallon: 8093
- Last gallon: 8633
- Start serial number: 20150307-P03-03365-008093
- End serial number: 20150307-P03-03365-008633
- Number of SRCs: 541

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**OWNERSHIP AND TRANSFERS**

- Transfer Date: 10-02-2015
- Purchase price per SRC: $1.90

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**STATUS**

- Sold?
- For Sale?
- Who is listed in the registry?
- Asking price per SRC
- Contact name
- Contact email
- Contact phone
- Status: Used
- Plan using offsite retention: 3831
- Offv Compliance Date: 10-31-2015
REQUIRED REPORTING AND ANALYSIS

- STORMWATER DATABASE
  - REPORTING TO US EPA
  - TMDL IMPLEMENTATION PLAN MODELING TOOL
  - CHESAPEAKE BAY PROGRAM MODEL
  - BMP MAP (WITH PUBLIC SHAPEFILE)
  - STORMWATER RETENTION CREDIT REGISTRY

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DEVELOPING THE STORMWATER DATABASE

Why the Stormwater Database?

SWDB development was driven by:
- MS4 Permit issued by EPA
- New stormwater regulations
- Requirements to track, report on, and model data for several programs

In-house database development

- DOEE created an interim database for some programs while the SWDB was under development
- Determined this was a good long-term solution

Ongoing adaptability

- DOEE can make on-the-fly changes as necessary to adapt to program changes
DOEE is able to evaluate and respond to program trends to ensure desired environmental outcomes.
Developers may meet stormwater performance requirements off-site, which has potential to be:

- More cost-effective way to encourage GI in high-priority areas
- Better for waterbodies
- Cheaper for developers
- Better for environmental justice outcomes
RESULTS: TRADING ACROSS SEWERSHEDS

Locations where SRCs are Generated and Used

- Generated in CSS; Used in CSS: 41%
- Generated in CSS; Used in MS4: 10%
- Generated in MS4; Used in CSS: 33%
- Generated in MS4; Used in MS4: 16%
CREDIT BANKING

• Each credit represents a one-year time period
• Credits can be banked indefinitely
• What portion of credits are generated and used contemporaneously? What are the tradeoffs?

Example Temporal Differences Between Period of SRC Certification and Period of SRC Use
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
**DATA MODELING**

- GI data syncs with TMDL Modeling tools to make plan for future restoration

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• DOEE publishes green infrastructure data so market participants can make informed decisions about where to pursue projects
WHAT’S NEXT?
ADDITIONAL TYPE OF PROGRAM EVALUATION

• Scenario analysis of on-site vs off-site regulatory compliance
• Tracking of co-benefits achieved (e.g. urban heat island reduction, habitat creation)
  • Requires a method to measure co-benefits
MORE INFORMATION

Matthew Espie
Matthew.Espie@dc.gov
(202) 715-7644

Stormwater Database
doe.dc.gov/swdb